

**Attitudes to authority: life-course stability,
intergenerational transmission, and socio-psychological
mechanisms in the British Cohort Study 1970**

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Gabriella Melis

School of Social Sciences

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ABSTRACT

The University of Manchester

Gabriella Melis

Degree of Doctor of Philosophy

Attitudes to authority: life-course stability, intergenerational transmission, and socio-psychological mechanisms in the British Cohort Study 1970

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My PhD work aimed to assess intergenerational transmission and life-course change of attitudes towards authority. Intergenerational transmission is hypothesised as the mechanism through which parents' authoritarian attitudes affect their children's attitudes towards authority in adulthood. In the assessment of this transmission mechanism, this analysis accounts for individual-level theoretically relevant factors such as gender, education, social class, offspring's cognitive ability in childhood, as well as family background, in a longitudinal, single-cohort perspective. The research used the British Cohort Study 1970 (BCS70), which allows for the analysis of change at both the intra- and inter-individual levels. The sweeps analysed are those in years 1975 for the parents, and 1980, 1996, 2000 and 2012 for the cohort members.

The analytical chapters of the thesis are made of three papers: The first assessed change (or stability) in attitudes to authority in the BCS70 from 1996 to 2012; the second looked at how parental authoritarian worldviews affect their children's attitudes towards authority when the children are adults; finally, the third paper aimed to evaluate the effect of parental attitudes on cohort members' attitudes towards authority in adulthood, after controlling for the latter's cognitive ability in childhood.

I found that attitudes had a reasonably high level of stability across the life course. Despite moderately strong correlations across attitudes within waves, the different attitudes showed different patterns of longitudinal evolution, suggesting different causal influences. The evidence for direct transmission of attitudes from parents to children was surprisingly weak; the social statuses of the parents and cohort members, and especially the members' childhood cognitive ability, were the strongest predictors of authoritarian attitudes in adulthood.

DECLARATION

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RATIONALE FOR THE ALTERNATIVE THESIS FORMAT (ATF)

With the aim to assess and expand knowledge on the mechanism of intergenerational transmission of authoritarianism from parents to their offspring, this thesis puts together research on socio-political attitudes, in particular on one of their sub-dimensions, i.e. what I have defined as attitudes to authority.

In order to specify and analyse the key hypotheses behind the simplistic direct attitudinal path from parents to their children, I specifically looked at how this phenomenon is both socially and individually characterised. Moreover, because attitudes are latent constructs, non-directly observable, rather inferred from people's responses to stimuli, in particular, I looked at aspects concerning their ontology and epistemology (definition and operationalisation), as well as at methodologies appropriate to empirically assess their development over time.

Hence, during the first year of the PhD programme, four major points were set as targets:

i.) Definition and measurement of authoritarianism, which brought to the narrower definition of attitudes to authority for the offspring generation, and of attitudes to child obedience for the parents' generation; ii) stability of attitudes to authority over the life course, specifically in adulthood; iii) assessment of the intergenerational transmission of authoritarianism and of its socio-economic determinants, with the limitations given by the different operational definitions accepted for the two populations under analysis; iv) assessment of the effect of a key, individual-level psychological variable, e.g. cognitive ability in childhood, on the intergenerational transmission.

With the supervisory team we soon agreed that point i) was common to the remaining ones, hence I needed integrate attitude definitional and measurement issues as integral part of the research topics in ii), iii), and iv).

Therefore, the team opted for the alternative thesis format, because of the idea that each research topic presented above, i.e., attitude change, intergenerational transmission, and the effect on the latter of childhood cognitive ability, each represent a specific research topic whilst also strongly connected both substantively and methodologically. The work for this thesis was then divided within three Studies, whose methodological and substantive connections are thoroughly discussed in the Introduction, Literature review, Methods, and Discussion chapters of this thesis. Moreover the same dataset was exploited across the three studies.

Then, Study 1 focuses on the assessment of intra-individual change in attitudes in adulthood, during the ages 26 to 42. With this paper we propose to strongly contribute to the debate on whether attitudes change over the life course, which is still a hot topic in sociology, political and social psychology, and political sciences, by focusing on attitudes to authority and their relationship with the concepts of authoritarianism/conformism.

Study 2 and Study 3 looked at the direct effects of a measure of parents' authoritarianism, defined as attitudes to child obedience, on their offspring's attitudes to authority in adulthood, when aged 42, after accounting for direct and indirect effects of socio-economic circumstances; in particular, Study 3 adds to the work done in Study 2 the assessment of the effect of childhood cognitive ability as well as of more in-depth gender differences.

The contributions of my co-authors to the three studies are discussed in the next page.

SUMMARY OF EMPIRICAL STUDIES

The ATF applied in this work is made of three analytical chapters written as complete, stand-alone papers, although, as already explained above, substantively and methodologically related.

I refer throughout this work to the three analytical chapters/paper as ‘studies’. Study number, titles, respective chapter in this work, and journals each of them has been prepared for submission to are summarised in Table 1.

The work contained in this thesis was conducted by myself, which defines me as the first author for the three articles that will be submitted to appropriate journals. The contribution of each one of my supervisors as co-authors of the article-format of the three studies is recognised fully and their names are part of the list of co-authors for each of the three papers, with the order based on the contribution given to the development of ideas, analysis and guidance on the interpretation of the results.

Table 1 Summary of empirical studies presented in this thesis

Study number	Thesis chapter	Study title	Journal
1	4	Attitudes to authority from 1996 to 2012: inter-individual differences and intra-individual stability	Longitudinal and Life Course Studies
2	5	Assessing intergenerational transmission of attitudes to authority in the British Cohort Study 1970	Journal of Marriage and Families
3	6	Childhood antecedents of intergenerational transmission of attitude to authority	Intelligence

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To Kairos

1 Introduction

1.1 Overview on aims and contents

In this thesis I investigate the mechanism of the intergenerational transmission of social attitudes, in particular of attitudes to authority, from the individual's family of origin to his/her adulthood, as well as the change of those attitudes during adulthood. In doing so, I also examine how such attitudes relate to a set of theoretically relevant family- and individual-level characteristics, such as indicators of socio-economic status (SES), religious upbringing, interest in politics and cognitive ability.

The analysis is centred on three main topics: 1. the change in attitudes to authority from early adulthood to midlife; 2. the extent to which attitudes are transmitted from parents to children—that is, whether and how communalities between individuals' attitudes in their adulthood and those of their parents are present; 3. the assessment of the transmission mechanism after the offspring's cognitive ability is taken into account. The examination of attitude change in adulthood is key to the other two topics, as in order to assess parent-child congruence in attitudes in adulthood, one must take into account potential life-course-dependent changes that could define the degree of similarity between the two populations' attitudes.

1.2 Rationale for the study

Analysing people's attitudes means identifying the presence and intensity of feelings, appraisals and tendencies to approach/avoid certain focal objects (Scott, 1954), such that attitude constructs are used in many scholarly disciplines to illuminate patterns of preference in regards to these focal objects, hence to enhance the explanatory and predictive power of studies of broader socially relevant phenomena like prejudice (Allport, 1954; H Tajfel, 1981), environmental protection (Dunlap & Jones, 2002), educational attainment (Pampaka, Williams, & Hutcheson, 2012) and public understanding of science (Sturgis, Brunton-Smith, & Fife-Schaw, 2010). Within the realm of this work, many scholars have highlighted the importance of studying attitudes to understand the mechanisms of public opinion formation and change (Dinas, 2013; Zaller, 1987, 1992) and their influence on voting patterns (Arcuri, Castelli, Galdi, Zogmaister, & Amadori, 2008), people's reactions to transient political issues of the day (Heath, Evans, & Martin, 1994),

and more generally their effect on important social questions (M. Elliot, Voas, & Park, 2014), such as people's civic involvement and participation in the cultural sphere of society at large (Green, Preston, & Janmaat, 2006; Paterson, 2008). Fernandez and Fogli (2009) defined culture as the systematic variation in preferences or beliefs across societies, placing attitudes at its heart. Inglehart (1997) also argued that within a specific society, culture is "a system of attitudes, values and knowledge that is widely shared within a society and transmitted from generation to generation" (*Ibid.*: 15). Similarly, Heath and Payne (2000) asserted that "a class which is homogeneous in its composition will exhibit a more distinct sub-culture on its own" (*Ibid.*: 267), and numerous authors have argued that social attitudes are accepted parts of this concept of sub-culture (Bisin & Verdier, 2011; Bourdieu & Passeron, 1977; Bronfenbrenner, 1979).

Related to culture is the concept of value system (Rokeach, 1968; Schwartz, 1992), where values are defined as criteria, enduring beliefs or worldviews regarding individual preferences on evaluating objects of thought which vary from specific things, people, groups and ideas (Bohner & Dickel, 2011) and social issues (Boer & Fischer, 2013; A. Park & Surridge, 2003); the evaluative process is what is referred to with the concept of attitudes (Boer & Fischer, 2013; Bohner & Dickel, 2011).

Since the seminal work on socio-political attitudes of Polish immigrants in the US by Thomas & Znaniecki (1918), going through the extensive research on the authoritarian personality (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950), nowadays there are two main organising continua in the literature for classifying people's socio-political beliefs: (i) *Left-Right* (Billig, 1984; G. D. Wilson & Brazendale, 1973), or *liberalism-conservatism* (Jost, Federico, & Napier, 2009) and (ii) *liberalism (also libertarianism)-authoritarianism* (Duckitt & Bizumic, 2013). The two constructs are often considered as interrelated; however, whilst the first one mostly encompasses beliefs on socio-economic equality, the second taps into evaluations on individual freedom and acceptance of change versus centralised control and fear of change (Duckitt & Bizumic, 2013; Harmel & Gibson, 1995). The construct I deal with in this work is considered as belonging to the second continua of socio-political beliefs, as here I accept the definition of authoritarianism as "support or opposition for the subordination of individual freedom and autonomy to the collective and its authority" (Duckitt & Bizumic, 2013, p. 843); in particular, I define

attitudes to authority as positive or negative evaluations of the controls and sanctions applied by a collectively legitimised authority such as the State to its citizens.

Feldman (2003) discussed the concept of authoritarianism as developed by Adorno et al (1950) and then further elaborated by Altemeyer (1981, 1996; 1992) with the measure of right-wing authoritarianism. He asserted his support for the latter's contextualisation of the construct within the social learning theory framework (Bandura & Walters, 1963), following which authoritarianism is a social attitude acquired from the interaction with parents, peers, the educational system and the media. Nonetheless, Feldman is critical of the operationalisation of authoritarianism, pointing out that its indicators are often related to the definition of conservatism (e.g., homophobia, sexism), rather than to the more specific issue of the conflict or compromise between individual rights (personal autonomy) and the collective, social wellbeing (social cohesion). Feldman also sees authoritarianism as a predictor of, but conceptually distinct from, prejudice and ethnocentrism. He therefore advocates the need to exclude indicators of these constructs in measures of authoritarianism to avoid tautological findings.

Following Duckitt (2001) Feldman sees authoritarianism as a dimension ranging from a desire for unlimited individual freedom (low authoritarianism) to a desire to adhere to societal norms of behaviour, driven by the perception of threat to these norms that such freedom could bring (high authoritarianism). Those high in authoritarianism crave for actions from the authorities to punish and restrict people's ability to challenge social norms. The key point for this present work is the importance that Feldman attributes to socialisation and child-rearing values for the measurement of authoritarianism, as he states that those who value social conformity want children to be good and obedient citizens, whilst the encouragement of autonomy in children will belong to those who value individual freedom. Feldman, Stenner (2005), Hetherington and Weiler (2009), and Solt (2012) give strong support to the idea of measuring authoritarianism through childrearing-related attitudes concerning importance of obedience and discipline, as these types of indicators tap into basic orientations towards authority without intruding into the hypothesised effects of authoritarianism on specific issues such as sexism, ethnocentrism and general prejudice. However, another well-established measure of authoritarianism mostly used in the political sciences literature is defined by indicators regarding the adherence to legally-defined social norms, i.e., the restrictions imposed to citizens by the

legal system, such as the law, censorship and the legitimised use of punishment for those who deviate from its prescriptions (Cheng, Bynner, Wiggins, & Schoon, 2011; G. Evans, Heath, & Lalljee, 1996; Heath et al., 1994; A. Park & Surridge, 2003). This conceptualisation also fits with Feldman's view of authoritarians' desire for punitive control (2003).

In this work I use both operationalisations of the concept of authoritarianism, i.e. the one based on childrearing opinions regarding obedience, and the one based on indicators of adherence to the rules of the legal system; indeed, in the examination of the mechanism of transmission of attitudes I used the first set of indicators for the parents' generation, and the second for the offspring generation in adulthood, hence considering specific nuances of the authoritarianism construct differently for the two populations. Based on the work cited above it is assumed here that the two measures are compatible, and that they represent in effect two aspects of the same phenomenon. Moreover, the assumption of compatibility between these two measures of authoritarianism is further justified by Zaller (1992), who points out the excess of specialisation and "insular literature" in public opinion research, whilst, he then suggests, stronger assumptions and terminological simplifications would help to broaden social theory.

The first focus of this research is attitude change over the life course, in particular on attitude change in adulthood. The debate on whether attitudes are transitional states constructed on the spot (Schwarz, 2007), or stable evaluative structures under the form of evaluative associations stored in memory in a mental file-drawer (Petty, Brinol, & DeMarree, 2007) is related to issues of definition and measures of attitude constructs (Bohner & Dickel, 2011). A synthesis between the two schools of thought subsumes attitude change within the process of attitude formation, which involves the cognitive processing of a consciously or unconsciously selected body of information (depending mostly on strength of the attitude and on the individual's ability to reflect on his/her attitude), so that new attitudes are tagged as valid by the subject, hence adopted, thus determining attitude change (Bohner & Dickel, 2011).

Socio-political attitudes in particular are by many considered as value-oriented (J. H. Evans, 1997a; Katz, 1960), i.e. core beliefs on topics that are developed in conjunction within a larger cultural context, being affected by historical events and by the common experiences of those sharing the same social context (Gentile, Campbell, & Twenge, 2014;

Kecskemeti, 1952), especially during the formative years (Hatemi & Verhulst, 2015). The perspective that I apply here is a specific point of view on attitudinal change, which aims to mostly assess individual-level, age-related change, rather than societal transformation over time; indeed, as Gentile et al (2014) highlighted, at the aggregate, societal level, the expectation would be to see generational (intended as birth cohort) differences in traits that develop early in life and that tend to remain stable over the life course at the individual level; the author then listed personality, self-views and attitudes as these types of traits (Gentile et al., 2014, p. 34). Change over time, at the individual level of analysis, in attitudes to authority is assessed in this study, through the analysis of a specific birth cohort, i.e. those who were born around 1970 in Britain (University of London. UCL Institute of Education., n.d.); up to now there have been very few studies that have looked at intra-individual change/stability in attitudes over the life course (Dinas, 2013; Jennings & Stoker, 2006; Stoker & Jennings, 2008). I will address this lack.

The second focus of this work is the evaluation of the effects of childhood background factors, in particular, parental attitudes towards authoritarian child-rearing on their offspring's attitudes to authority in adulthood (Bucx, Raaijmakers, & van Wel, 2010; Gniewosz, Noack, & Buhl, 2009; H. Park & Lau, 2016). I decided to look into the mechanism of intra-family transmission of these attitudes, rather than into other dimensions of political ideology and social attitudes because of the importance of authoritarianism in defining more specific social dominance orientations (such as gender equality, racism and prejudice) (Duckitt, 2001; Feldman, 1988, 2003) as well as because of the strong connection between authoritarian childrearing attitudes and attitudes to legal authority as highlighted in the literature (Feldman, 2003; H. Park & Lau, 2016; Solt, 2012). As far as intergenerational transmission is concerned, Inglehart's (1997) position offers a theoretical perspective in which early childhood appears important for the absorption of cultural traits from the surrounding social environment. Some authors point to parents as having the largest influence in shaping attitudes and values (H. Park & Lau, 2016; Trifan, Stattin, & Tilton-Weaver, 2014). The interest of the present work is, indeed, in the mechanism of vertical socialisation, from parents to their children, regarding the transmission of attitudes to authority. Parents are indeed considered as important influences on children's attitudes (Abendschon, 2013; Bisin & Verdier, 2011; Verba, Schlozman, & Burns, 2005); nonetheless it is not clear by which mechanisms this occurs. This work aims to contribute to assess some of these mechanisms, and focuses on two of

those proposed, i.e.: direct absorption of the parents' attitude by the child (E. Q. Campbell, 1969; Erikson, 1950) and the influences of cognitive ability (Deary, Batty, & Gale, 2008a; Schoon, Cheng, Gale, Batty, & Deary, 2010).

The direct attitudinal pathways from parents' authoritarianism, as measured by their opinions on child obedience, and their offspring's, as measured by their attitudes on items tapping into legal authority, is the central focus of Study 2 in this thesis, whilst the effect of cognitive ability is the focus of Study 3.

As far as direct family transmission is concerned, previous research has shown that the degree of congruence between parents' and children's social attitudes depends on the type of political trait considered, as well as on the ideological affinity of the parents (P. A. Beck & Jennings, 1975; Bengtson & Roberts, 1991; Jennings & Niemi, 1968), and on wider societal settings such as party systems and opinion climates. Opinion climates are seen as a function of historical events that are cohort specific (Jennings & Stoker, 2006), such that explanations of inter-cohort variability in social attitudes are prompted by the political events affecting each generation. These same authors, however, integrated the generation/population replacement hypothesis with a life-course perspective, with the aim to integrate explanations on aggregate social change with explanation on individual-level change. What they found was an interaction between the two phenomena, reporting cohort differences in developmental trajectories of partisan affiliation and opinions on social issues. Research focusing on single cohort or cohort-specific effects would therefore seem desirable in this domain. Moreover Jennings, Stoker and Bowers (2009) pointed out that children who are socialised to politics early in life by their parents show less intra-individual change from early adulthood onward, and tend to carry the parental worldviews forward, determining intergenerational congruence in attitudes; at the same time they also found that a politicised family environment also favours children's interactions with outside political influences.

In Studies 1 and 2 I also took into account political interest and religiosity as predictors of authoritarian attitudes (although the first factor, political interest, was only available for the parents' generation). Self-reported political interest is taken here as an indicator of political awareness and involvement, hence of exposure to political communication; indeed, regarding the realm of Study 1 on attitude change in this thesis, the previous literature found that attitude change is more marked for people in the middle range of it, as

compared to those with higher level of political awareness whose, given their greater volume of stored information, attitudinal preferences remain unchanged, as well as compared to disengaged citizens, given their generally low level of susceptibility to political discourses (Converse, 1964; Petty & Krosnick, 1995; Zaller, 1987). Political interest is also likely to be (weakly) related to the general level of political awareness in the household. As mentioned above, Jennings, Stoker and Bowers (2009) found that children who are socialised to politics early in life by their parents show less intra-individual change from early adulthood onward, Political interest may therefore be expected to predict low levels of attitude change. Study 2 makes use of this variable in the assessment of the mechanism of intergenerational transmission as to control for this factor, rather than to hypothesise its specific mediation or moderation functions, and this choice derives from the idea that the level of exposure to political communication is positively associated with political awareness, hence with the ability to identify their preferences and interests, and negatively associated with uncritical acceptance of political messages and simple heuristics (Zaller, 1987). In Study 2 I controlled for the effect of parents' socio-economic circumstances on the level of political interest of their offspring, as to account for potential socialisation mechanism to political issues (E. Q. Campbell, 1969; Quintilier, 2013). The role of religiosity for the definition of the levels of authoritarianism is a disputed topic (Canetti-Nisim, 2004; Norris & Inglehart, 2004; Putnam & Campbell, 2010; Voas & Crockett, 2005), which becomes even more poignant when intergenerational transmission of both is taken into account in an intertwined fashion: Canetti-Nisim (Canetti-Nisim, 2004) found that authoritarianism works as a powerful mediator between religiosity and the endorsement of democratic values, with strong and positive relationship between the first two factors; indeed, because of this strong association, highly religious people are more likely to be more intolerant of diversity and less supportive of abstract democratic values, in line with the hypothesis that authoritarianism, rather than being a personality trait, is instead a social and ideological attitude dimension (Altemeyer, 1996; Duckitt, 2001).

There is a plausible alternative explanation for the observed mechanism of intergenerational transmission of socio-political attitudes, i.e., biological hence genetic inheritance. Martin et al (1986) found that a genetic model for family compatibility in social attitudes is plausible and that purely cultural models are inappropriate, concluding that vertical transmission of attitudes has a genetic component. In their study, by analysing

a composite measure of conservatism, for instance, these authors report that the scores are more highly correlated amongst monozygotic rather than among dizygotic twins in an Australian sample; their results also show cultural factors play only a small role, and if anything, the role of learning and social interaction is determined by the effect of the genotype on the development of political attitudes, such that individuals acquire from the social environment only what is compatible with their genotype, selecting only what is relevant and adaptive. .

Fowler et al (2008) looked into genetic heritability of political participation, and found that after taking into account socialization and environmental factors, genetic differences account for a large and significant amount of the variation in political participation, around 50%; for these authors, evidence from twin- and extended-family-design studies regarding the decision to vote showed a shared genetic influence on socio-demographic factors and political attitudes. Alford et al (2005) argued on the genetic heritability of political ideology, which was supported also in regards to specific social attitudes, in particular attitudes towards homosexuality and gay rights (Eaves & Hatemi, 2008); nonetheless the study by Eaves and Hatemi also found a strong influence from assortative mating, hence high congruence in attitudes to homosexuality between the parents of the twins studied. However, as Fowler et al stated, there are many genes and many causal steps between genes and behaviour, and it is hard to identify which specific gene contribute to a specific behaviour.

Within the theoretical framework of genetic inheritance, between 30-50% of the variation in issue orientation, ideology and party identification has been attributed to genetic rather than socialisation factors (Alford et al., 2005; Eaves & Hatemi, 2008; Martin et al., 1986); however, as Oskarsson et al. (Oskarsson et al., 2015) point out, most of the previous literature on this topic has assumed political ideology as a unidimensional concept, contrarily to what consistently suggested by the evidence on its multidimensionality (Feldman, 2003; Jost et al., 2009), so that measures that tap into subdimensions of the ideological spectrum should be used in order to more clearly disentangle social and genetic pathways of transmission. These same authors, in line with Fowler et al (2008), argue that the aim of assessing biological inheritance should include the search for plausible mechanisms mediating the relationship between genes and political attitudes and behaviours: with this purpose, Oskarsson et al explore the role of cognitive ability as the

mechanism able to explain the heritable variation in political orientations. Their results show that cognitive ability, measured through a test with four dimensions (logical, verbal, spatial and technical) taken by around 2,000 Swedish twins aged 52-67 years old and completed during mandatory military conscription, relates to their six measures of political orientation, so that high scores of cognitive ability predict support to privatisation, oppose high taxes, higher levels of cosmopolitan immigration and foreign policies; finally these authors also show that a common genetic source underpins both cognitive ability and political orientations. The mechanisms through which cognitive ability may affect political orientations are connected to Wilson's (1973) dynamic theory of conservatism, where it is stated that the conservative attitudes syndrome is defined by the experience of threat or anxiety when people face uncertainty, so that both heritable factors (low cognitive ability, trait anxiety and stimulus aversion) and environmental factors (parental treatment, social class) affect levels of insecurity as well as resistance to change (Jost, Glaser, Kruglanski, & Sulloway, 2003; Oskarsson et al., 2015). Moreover, and in relation to the underlying levels of insecurity hypothesis, cognitive ability has been found as negatively associated with risk aversion and hence social trust (Dohemen, Falk, Huffman, & Sunde, 2008). In opposition to most previous studies, however, Oskarsson et al found a significant influence of shared environment on the left-right dimension of political ideology, as well as on economic policy opinions, and conclude that environmental factors is not just equal to parental influence, but includes also the influence of socio-economic factors, religion, peers; at the same time, evidence of strong genetic and weak shared environment effects do not exclude the significant role of family socialisation: the effect from genes to political orientations cannot be seen as direct, rather mediated by parental opinions and behaviours (2015).

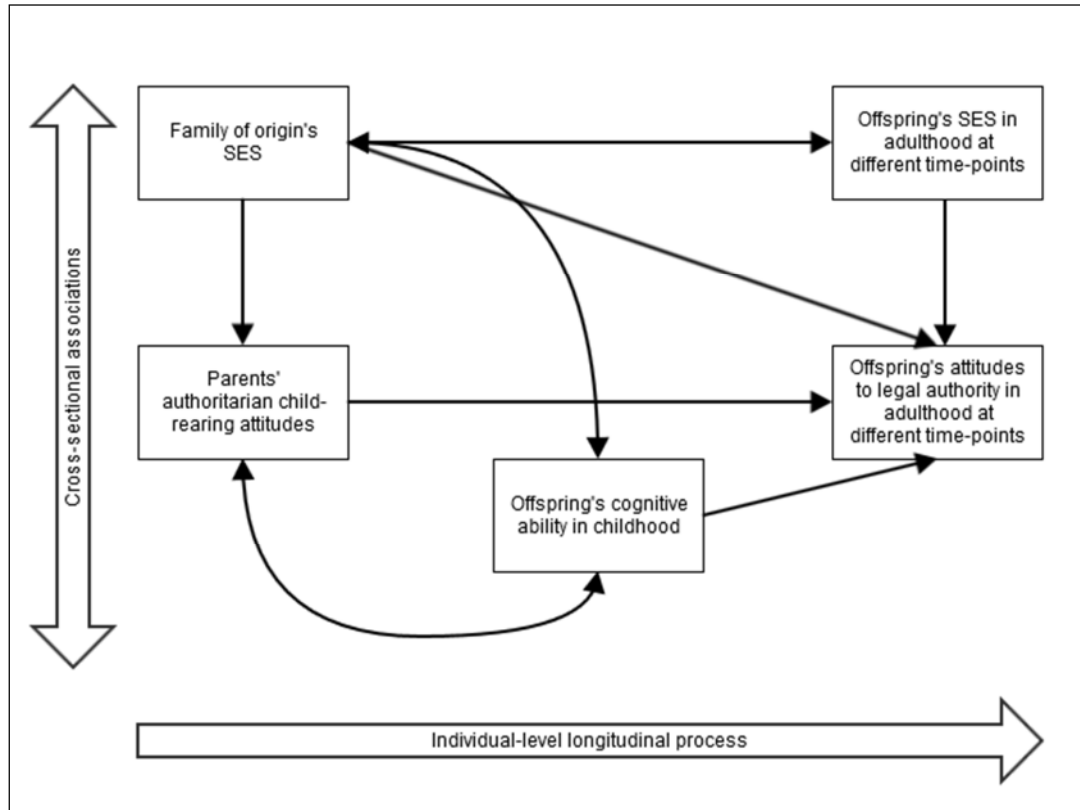
Hence, the third focus of this research concerns the evaluation of a recent stream of work on the effect of cognitive ability on socio-political attitudes (Deary, Batty, & Gale, 2008b; McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999; Sturgis, 2010); this evidence suggests that higher levels of cognitive ability, even when measured in childhood, predict lower levels of conservatism and authoritarianism in adulthood (Schoon et al., 2010). Onraet et al's (2015) meta-analysis based on 82 independent samples showed that the higher the cognitive ability scores, the less likely people were to express authoritarian beliefs or be prejudiced. Van Hiel et al (2010) reported that the strongest and most persistent predictor of liberalism in adulthood is years of education (or educational level), which in other studies has been used as a proxy for cognitive ability (Bynner, Schuller, &

Feinstein, 2003). Further studies have shown that cognitive ability is positively associated with sensitivity to interpersonal cues and to accuracy in interpreting others' behaviour and intentions, hence to higher levels of generalised trust (Gordon Hodson, 2014; Sturgis, 2010). Oskarsson et al (Oskarsson et al., 2015) found in their Swedish sample moderate to strong associations between cognitive ability and opinions on redistribution, immigration and foreign policies, and in their quest to disentangle the genetic and environmental etiology of the association between cognitive ability and political orientations asserted the existence of common genetic factors affecting both cognitive ability and political ideology, in line with a causal mediation mechanism hypothesis; nonetheless, these authors also concluded by stating a causal order with cognitive ability preceding political orientations.

Although extremely fertile and interesting, the genetic heritability mechanism of socio-political attitudes is not considered here, as the focus is on the assessment of the effect of vertical transmission as a cultural mechanism, also due to the lack of information on these aspects in the type of data used in the present thesis.

Therefore, the specific focus of the present research project will be on the micro-level variations of attitudes towards authority and their determinants, rather than on aggregate trends. Individual differences in stability/change of attitudes are of great interest to social sciences as these are largely seen as predictors of behaviour (Fabrigar, Petty, Smith, & Crites, 2006; Triandis, 1971). Anastasi and Urbina (1997) argued that behaviours could be explained by the coexistence and interaction between situational variables and individual psychological traits; in the present work, attitudes towards socially relevant issues are defined as socially acquired psychological traits modifiable by experience. The assumed theoretical process of intergenerational transmission considered in this work is represented graphically in Figure 1.1. The diagram aims to show the main theoretical pathways influencing offspring attitudes, rather than attempting to exhaustively list all theoretically meaningful pathways among the constructs, such that, for instance, childhood cognitive ability undoubtedly affects adult SES, but this arrow is not shown, because predicting adult SES is not the key aim of this work.

Figure 1.1 Graphical representation of the assumed theoretical mechanism of intergenerational transmission of attitudes to authority from parents to their offspring



Hence, in Figure 1.1 the two external arrows represent the two temporal processes along which an individual's attitudes are assumed to form and be characterised, that is: i) the vertical bi-directional arrow labelled as 'Cross-sectional associations' depicts the relationship between an individual's attitudes and their socio-economic status (SES), as well as other theoretically relevant characteristics such as gender, age, religion and political involvement (as explained in the next chapters, although for simplicity not reported in the diagram above), in synchrony at a certain point in time; ii) the horizontal arrow illustrates the longitudinal, hypothetically cumulative mechanism that assumes the effects of an individual's family background and childhood circumstances, such as cognitive ability, as key factors in the definition of his/her attitudes to authority in adulthood. In addition, the analysis of the diagonal relationships between the family of origin's SES and the offspring's social attitudes will enhance our understanding of the association between socio-economic characteristics and attitudes in the longitudinal perspective. In Figure 1.1 the bi-directional arrows indicate an assumed reciprocal

influence between parents' SES, parents' attitudes and their offspring's cognitive ability in childhood, whilst the single-headed arrows indicate the longitudinal (unidirectional) effects of previous statuses on the next ones.

In reference to Figure 1.1, the research reported in this thesis is organised into three studies, each tackling specific research questions as follows:

Study 1: Can attitudes to authority be defined as a unidimensional, coherent construct across time? Do they change over time in a life course perspective, or rather, are they stable? How are individual socio-economic characteristics related to attitudes to authority over time?

Study 2: Can a within-family mechanism of intergenerational transmission of attitudes to authority be identified?

Study 3: Do parents' attitudes to child obedience predict their children's attitudes to authority in adulthood, after controlling for socio-demographic characteristics of parents and their offspring, as well as for the offspring's cognitive ability in childhood?

In talking about psychological traits, and socio-political attitudes in particular, I follow the critical-realist (also referred to as constructivist-realist) ontological perspective (Messick, 1989); this allows me to postulate these traits as latent (unobservable), for which it is the scientist's aim to infer their features on the basis of hypotheses on the connection between the traits and their manifest indicators (Lazarsfeld, 1958). In summary, this work aimed to produce two substantive contributions to the literature, which are reflected in the two dimensions of Figure 1.1. The first contribution, represented on the y-axis of Figure 1.1, is to investigate the form of individual-level changes in attitudes to authority in adulthood. The second, represented by the x-axis, is to evaluate the mechanisms of transmission of attitudes to authority from parents to their children. To help deliver these substantive contributions I employed sophisticated analysis methods that have not been used in this area before, namely Item Response Theory models of the indicators of authoritarian attitudes, both in the CMs' and the parents, and with regard to longitudinal growth as well as cross-sectional measurement.

The original contribution to knowledge is to be found in the identification of weak direct attitudinal path from parental attitudes to child rearing to their offspring's attitudes to

authority in adulthood, and of rather strong direct and indirect effects of socio-economic circumstances as mediated by the measure of cognitive ability in childhood. Moreover, the assessment of stability in attitudes to authority for the offspring generation from early to late adulthood gives a clear contribution to the literature on attitude change, by establishing this type of attitudes as value-oriented, hence as relevant in the definition of other sets of issue-oriented attitudes (Jost et al., 2009; Katz, 1960).

The theoretical issues that frame this work are examined in the literature review provided in Chapter 2, structured as follows: i) Discussion of the attitude construct in the socio-psychological literature; ii) Definition of attitudes to authority; iii) Social and individual-level determinants of attitudes to authority; iv) Change over the life course in attitudes to authority; v) Intergenerational transmission of these attitudes from parents to their offspring.

The methodology used in the research is described in Chapter 3, which also contains a description of the data and the analytical approach specific to each of the three empirical studies. The data set chosen for this work is the British Cohort Study 1970 (BCS70), which allows for the assessment of individual-level change over time and intergenerational transmission, as well as of the effect of childhood inter-individual differences in cognitive ability on attitudes to authority in adulthood. The analytical approach is positioned within the generalised latent variable modelling framework, as formalised by Muthén (2002) for longitudinal analysis based on structural equation models (SEM) with ordinal outcomes, as well as a mixture of ordinal exogenous and endogenous variables. Assessments are proposed on the validity of measurement models for the latent constructs of attitudes for parents and their offspring in adulthood.

Chapters 4, 5 and 6 report on the three empirical studies. Each of the three chapters is presented as a standalone piece of work and shaped as a complete, original paper. As set, the three papers represent the analytical steps followed in order to gain an in-depth view on family- and individual-level factors defining the mechanism of intergenerational transmission of attitudes to authority.

Chapter 7 provides a discussion of the results of the three studies, and connects them more thoroughly to the broader theoretical literature referred to in Chapter 2, in order to highlight contributions to knowledge and limitations of the three pieces of work.

2 Attitudes to authority: ontological issues and theoretical determinants in a life-course perspective

2.1 Introduction

In this chapter, definitions of attitudes in general are given—socio-political attitudes in particular, and most specifically, attitudes to authority—together with the key literature on socio-psychological determinants of attitudes, attitude change and intergenerational transmission, in order to illustrate the theoretical frameworks within which the concept of attitudes to authority is positioned in this study.

2.2 Attitudes: definition, structure and functions

The importance of the concept of attitude in the social sciences is related to the use made by social theory of this abstract, unobservable construct (Hox, 1997; Lazarsfeld, 1958); indeed, theories and hypotheses on the interaction between individuals, as well as between groups, are based on the assumption of the existence of a common cognitive structure, defined in broad terms as culture, and attitudes are considered as a constituent of culture (Almond & Verba, 1963), or even as stated by Allport (1961) with an excess of realism, the *concrete* representations of culture. If we accept culture to be a cognitive system that represents a social group with shared language, norms, values, beliefs and life experiences (Johnson et al., 1997), attitudes are concepts/constructs mostly used in socio-psychological theories to connect the cultural system to the individual-level cognitive system, as processing factors and dispositions which receive and elaborate on societal stimuli in the experiences of daily life. As it is reported below, the importance of the concept of attitude in socio-psychological research grew during the first decades of the 20th century (Allport, 1935), when the major function attributed to the assumed, underlying individual mental process was to predict behavioural outcomes; moreover, the hypothesised predictive power of attitudinal dispositions for behavioural outcomes achieved widespread recognition due to the refinement of standardised measurement tools (Guttman, 1950; Thurstone, 1931), which were and still are based further on a strong theoretical assumption regarding the possibility to observe common configurations of attitudes (same as for observed behaviours), at the same time potentially differentiable across groups defined, for instance,

by key socio-demographic variables, depending on the object towards which the attitude is supposed to be focused. The following subsections clarify the concept of attitudes.

2.2.1 Definitions

The use of the term attitude in social sciences has a long history, and its extensive use at the beginning of the 20th century is documented, for instance, by the definition of social psychology as the scientific study of attitudes (Thomas & Znaniecki, 1918). The chapter *Attitudes* written by G. Allport in 1935 for *A Handbook of Social Psychology* (Murchison, 1935) mainly treated the discussion on the role of attitudes for social psychology in a historical perspective, stating that one of the first uses of the term is to be traced back to Spencer's (H. Spencer, 1862) *First Principles*, where the relationship between attitude and judgement is made explicit; Spencer's reference to the term was made with regard to the role of a right mental attitude, whilst listening to and taking part in discussions over disputed questions, in order to arrive at the correct judgement of the situation under discussion. The chapter on which this point is developed is titled *Religion and Science*, and claimed the need for an impartial attitude in the process of judging controversies on the relationship between religious and scientific beliefs.

From this work onwards, the concept of attitude has been developed mostly within the socio-psychological research framework. Bogardus (1931) stated that "an attitude is a tendency to act toward or against some environmental factor, which becomes thereby a positive or negative value" (1931, p. 62); moreover, this author defines attitudes as different from "desire" in that the former are "*less innate [...]*, more clearly defined, more definitely selected by a person, more cognitive" (*Ibid.*; italic added). The characterisation of attitudes as *less-innate* individual features could be seen as referring to an acquired nature. Attitudes are socially acquired because they are conceptualised as being rooted in experience, hence influenced by prior activity. In this they are also differentiated from instincts (Dewey, 1922), but like instincts they can operate automatically if, by repeated prior experience, they become habitual manners of reacting to life (Bogardus, 1931).

Further notable contributions to a definition of attitudes were given by Thurstone (1931), who stated that "attitude is the affect for or against a psychological object" (1931, p. 261). Thurstone specified that an attitude is seen as a general potential action towards an object in terms of favourable or unfavourable action. Attitude as affection varies in terms of

intensity (strong or weak) along a linear continuum, so that it is possible to measure a group of people along this continuum and discriminate amongst them. As far as experience is concerned, Thurstone highlighted the importance of seeing experience as facts that explain someone's attitude, rather than being part of the definition of attitude itself.

Allport's (1935) main theoretical finding was that, through most of the definitions given up to that point in time, attitudes were commonly conceptualised as "preparation or readiness for response" to a situation (*Ibid.*: 805); then this definition was completed by adding that attitudes are "organised through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations to which it is related" (*Ibid.*: 810).

On the same line of operationalisation, a broadly scoped definition of attitude was provided by Krech and Crutchfield (1948) over 60 years ago as "an enduring organisation of motivational, emotional, perceptual and cognitive processes with respect to some aspects of the individual's world" (1948, p. 152).

Within their Theory of Planned Behaviour, in light of the previous studies on the relationship between attitudes and observable action, as well as of studies on critical perspectives regarding attitude-behaviour gap (Rosenbergh & Hovland, 1960; Thurstone, 1931), Fishbein and Ajzen (1975) formulated a mathematical and widely accepted definition of attitude as in Equation 1 below.

$$A_o = \sum_{i=1}^n b_i e_i \quad \text{Equation 1}$$

where " A_o is the attitude towards some object O , b_i is the belief i about O (i.e. the subjective probability that O is related to attribute i); e_i is the evaluation of attribute i ; and n is the number of beliefs" (1975, p. 74). In other words, an "attitude structure consists of a collection of subjective beliefs about an object" (Pratkanis, 1989). It is in this context that the definition of attitudes as an evaluative/affective process is underscored, and conceived clearly as the favourable or unfavourable evaluation of a specific object or behaviour. Later, also Cacioppo and Berntson (1994) defined attitudes as the manifestation of an evaluative process, as "general and enduring favourable or unfavourable feelings about, evaluative categorisations of, and action predisposition toward stimuli" (1994, p. 401).

In their review of studies conducted in the 90s, Petty et al (1997) defined attitudes as summary evaluations of objects ranging along a continuum from positive to negative (1997, p. 611); in their perspective the study of attitudes' underlying bases and structure, seen as complex and multidimensional, is a key theme.

One of the latest descriptions of the state of the art on attitude definition is given by Bohner and Dickel (2011), whose definition is as follows: "an attitude is an evaluation of an object of thought" (2011, p. 392), although recognising numerous variations of models for more elaborate concepts of it, for instance, by organising definitions of attitudes along a continuum defined by the two extremes of attitudes as stable entities stored in memory (Fazio, 2007) versus attitudes as temporary judgements based on the information at hand when elicited, i.e. context-sensitive evaluations (Schwarz, 2007). The intermediate position along the continuum is represented by one of Eagly and Chaiken's (2007) latest works, in which a broad definition of attitude that embraces tendency, entity and evaluation is found. Thus, evaluation refers to any evaluative response (overt, covert, cognitive, affective, behavioural) encompassing beliefs, thoughts, feelings, emotions, intentions and overt behaviour. Moreover, evaluation is intended here as a tendency to react which is not necessarily consciously experienced by the attitude holder. This is clearly reminiscent of Thurstone's (1931) definition discussed above. Following Eagly and Chaiken (2007), an attitude object is anything that is borne in mind, even sometimes below the level of awareness; moreover, an attitude object can be abstract or concrete, individual or collective.

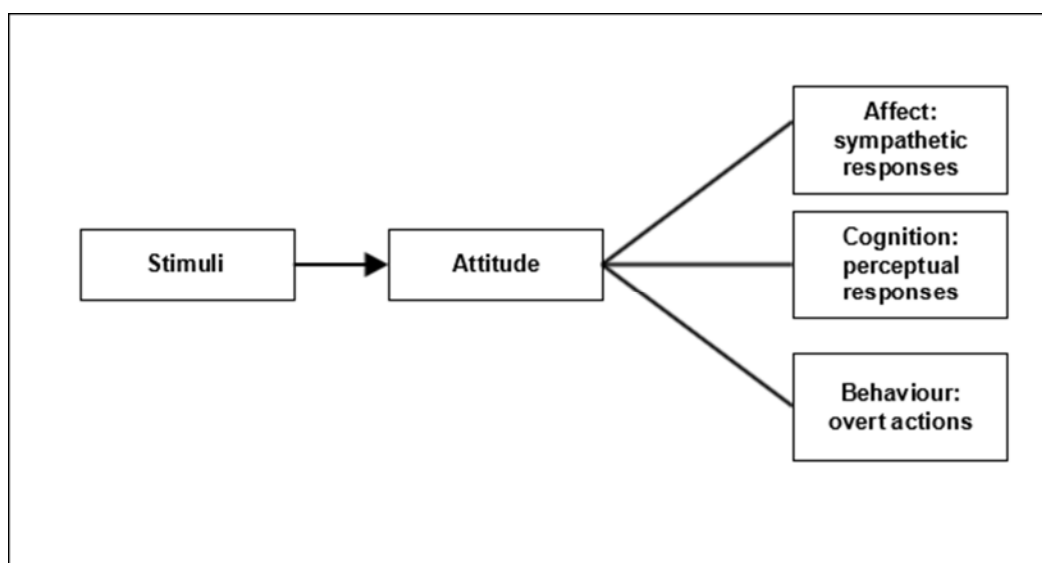
In general, the types of definitions given above belong to the cognitive framework of attitude research, that is, these offer explanations of the evaluative process towards an object in terms of mental processes. A second framework posits more weight on the function of attitudes in terms of evaluative responses to stimuli in the environment (Bogardus, 1931; De Houwer, Gawronski, & Barnes-Holmes, 2013). The sections that follow on attitudes' structure and functions better highlight the functional approach to attitude research.

2.2.2 Structure of attitudes

Although Thurstone's (1931) uni-dimensional definition of attitude highlighted mainly the affective aspect of the concept of attitude, other authors after him have defined attitude as a

multidimensional construct. In their chapter *The structure of attitudes and beliefs*, Eagly and Chaiken (1993) stated that more complicated structural properties of an attitude have been taken into account, such as cognitive, affective and behavioural aspects, as previously reported also by Rosenbergh and Hovland (1960). Rosenbergh and Hovland gave the most popular description of a hypothetical structure for an attitude by assuming it as made of three components (dimensions), organised and integrated in a diagram of *stimuli-responses* as follows:

Figure 2.1 Diagram of Stimuli-Responses model and theoretical attitude structure



Source: Rosenbergh and Hovland (1960)

Following Figure 2.1, these authors saw an attitude and its components as intervening variables in the process of elaboration of answers to stimuli (also defined as attitude objects); in general, the affective component is thought of as the emotions towards the object, the cognitive component as the knowledge and categorisation of the object and, finally, the behavioural component as the predisposition to action, as well as the action itself.

2.3 Functions

Rosenbergh and Hovland's (1960) definition belongs to the approach labelled "functional analysis of attitudes", which was concerned with investigating the functions of attitudes in the specification of personality trait characteristics (Katz, 1960). In this framework,

attitudes may express the evaluative process as part of an individual's personality, by helping to adjust to environmental circumstances; for Katz, attitudes perform essentially four functions: instrumental or adjustive-utilitarian (to maximise rewards and minimise penalties); ego-defensive (against other beliefs that may create dissonance); value-expressive (manifestation of underlying value dispositions); and finally, knowledge-expressive (reflecting the need to categorise and organise objects). Campbell (1963) also saw attitudes as acquired behavioural dispositions, defined as the individual's transactions with the surrounding environment. The prevalent function depends on the different instances of the evaluative process, as well as on different moderators of evaluation, such as elements of the environment and of the evaluating subject (De Houwer et al., 2013). De Houwer et al, however, confirmed the importance of the cognitive analysis in attitude research, as this is essential in order to understand how the process of evaluation under exam occurs, i.e. what the mediators between stimuli and evaluative responses are.

2.3.1 Are attitudes stable entities? Values and attitude persistence

2.3.1.1 Values and attitudes

Paraphrasing Thomas and Znaniecki (1918), Allport (1935) seemed to accept that attitudes are individual mental processes that guide people's actual and potential responses in the social world, whilst values are "social in nature, [...] they are objects of common regard on the part of socialized men" (1935, p. 802). By many, the relationship between attitudes and values is hypothesised to be hierarchical in terms of higher stability and endurance of the latter, over time as well as across different contexts; attitudes are subordinated to values, and conceptualised as a more or less stable, strong state of mind of the individual toward certain values widely seen as norms subjected to more overt social pressure (Rokeach, 1968; Schwartz, 1994). In the context of definition of the relationship between attitudes and values Bogardus (1931) argued that the attitude is the personal counterpart of the social value and that any form of activity is the connection between these two levels. This same author also specified that attitudes are ontologically different from opinions in that the latter can be repudiated when "the real test of action comes" (1931, p. 62); therefore, if the source of attitudes is real experience, then they should be disclosed by acts in relation to past acts, in a life course perspective as connected personal experiences.

Rokeach (1968) is one of the precursors in the enunciation of this hierarchy, and Stern et al. (1995), for instance, found that the importance that people place in certain values affected their attitudes towards behavioural choices. Indeed, Katz's (1960) fourth function of attitudes, the value-expressive, is conceptualised as the most resistant to change; moreover, when this fourth function of attitudes is taken into account, the attitude-value relation seems more blurry, as value-expressive attitudes are also defined as those more associated to behavioural responses (Banaji & Heiphetz, 2010).

2.3.1.2 **Change, or stability in attitudes?**

The main continuum along which Bohner & Dickel (2011) placed the definition of attitude is ordered accordingly to the conceptualisation of attitudes as stable entities versus temporary constructions on the spot, thus reproducing the diatribe between attitudes as states (enduring) versus attitudes as traits (labile) (Anastasi, 1948). As most of the authors mentioned in Section 2.2 above, such as Campbell (1963), view attitudes as *consistency* in response to social objects, reinforcing the conception of this term as useful to predict further outcomes associated to the interaction with the same social objects. More recently, also, Coaley (2009) argued that an attitude is a stable predisposition to behave in a particular manner and its 'object' may be anything held in mind, whether concrete or abstract. Two recent models, the meta-cognitive model (MCM) (Fazio, 2007), and the motivation and opportunities as determinants model (MODE) (Petty et al., 2007) assume that evaluations of an object of thought are linked to global, stable cognitive structure of evaluations, with the MCM adding variance of strength for these associative links. Always from the side of attitudes as stable states, Visser and Mirabile (2004) offer the file-drawer perspective, following which context-specific effects on the assumed enduring attitudes are allowed due to an important moderator of attitude stability, i.e. attitude strength (Judd, Drake, Downing, & Krosnick, 1991); strong attitudes are more easily accessed in memory, whilst weak attitudes are more susceptible to contextual influences and then to change.

Following Bohner and Dickel's account, Schwarz (2007), on the other hand, considered attitudes as evaluative judgements constructed on the spot and based on information at hand at that point in time. Gawronski & Bodenhausen (2007) hypothesised that attitudes are defined by two mental processes: associative evaluation and propositional reasoning, with the former automatically activated by a stimulus, hence being context-dependent, and defined also as implicit attitudes, out of the rational control of the subject. Propositional

reasoning is at the basis of explicit (overt, manifested) attitudes, and is consistent with a more stable, value-based cognitive evaluation.

Mid-way between the state-trait diatribes in the definition of attitudes is Eagly & Chaiken's (2007) umbrella definition of attitudes as the tendency to evaluate an object in a way that is consistent with the individual's broader system of beliefs, as well as social norms, highlighting its connection to past experiences, reactions, and thus consistency, as a process of conscious endorsement. It is also worth noticing that this latter ontological perspective on attitudes could be translated within the affirmed theory of cognitive dissonance (Festinger, 1962), which elegantly described behavioural choices as based on the principle of cognitive consistency, which hence affects attitude change and/or stability.

2.3.1.3 Cognitive processes of attitude change and formation

Attitude ontologies imply different ways of conceptualising attitude change: from the constructionist perspective that sees attitudes as judgements made on the spot based on the available information at hand, the contextual set of information available at that time is what determines change (Schwarz, 2007); from the file-drawer perspective the change is determined by a change in the underlying representation of the object under scrutiny (Petty et al., 2007). Also, different measures of attitudes, i.e. explicit and implicit, are related to different processes being posited as the origin of change, which also embraces the issue of attitude formation (Bohner & Dickel, 2011). From this it follows that the two perspectives do not seem to be, on this topic, in contrast with each other; indeed, a synthesis of the two has been proposed to describe attitude change, and it lays on studies of attitude change that used both implicit and explicit measures: Bohner and Dickel hypothesised that “attitude change involves the retrieval of stored evaluations and the consideration of new evaluative information to varying extent” (2011, p. 397). This also results in the formation of new evaluations, such that the processes of attitude change and formation cannot be disentangled, and context-dependent evaluations may be due to multiple attitudes towards the same object, from which then one is consciously selected each time, depending on the most accessible (strong) in the specific context, but the “past attitudes are still there” (Petty et al., 2007). Again in line with Festinger's dissonance theory, attitude change could be considered as coming from uncertainty at the unconscious level, triggered by facing new experiences on the experiential level. As part of Festinger's theory, people also selectively pay attention to the new different pieces of information made available to them, mostly

choosing those that confirm their previous attitude (attitude congruency); nonetheless, it has recently been found that accessibility of attitudes acts as moderator over the choice between congenial and non-congenial information (Hart et al., 2009), with stronger attitudes directing to the choice of attitude-congruent arguments.

Important in attitude change is the effect of the audience. The “saying-is-believing” (SIB) effect reported by Higgins and Rholes (1978) states that an attitude is expressed as tuned to the perceived attitudes of the audience, as well as that the memory of that attitude is in line with the verbally expressed opinion, hence with the audience’s. However, more recent studies have found proofs of a mediating mechanism of the audience-tuning process in the social sharing of reality, and it is based on the attitude holder’s trust in the audience, so that the SIB effect is higher for in-group, equal-status audiences than for out-group, higher-status audiences (Echterhoff, Higgins, & Levine, 2009). This mechanism, as highlighted by Bohner & Dickel (2011), also supports the shared-reality effect regarding social groups and prejudiced attitudes: Blank (2009) hypothesised that the social environment affects memory (or attitudes) at three stages; that is, (a) the thought is constructed from the information that comes to mind at first, though social factors could make some pieces of information more accessible than others and tuned to previous social cues, (b) the validation of the constructed representation starts, but others’ attitudes may influence the process as it is more likely that the opinions of experts and of the majority will have played a role in the individual’s evaluation of the belief, and (c) when the individual is to communicate his/her attitude to the audience, the outing moment is further affected by the individual's knowledge of the audience’s position, tending mostly to tune to it.

2.3.1.4 Considerations on attitude ontology and epistemology

I argue that Eagly and Chaiken’s (2007) “umbrella” definition of attitude is the most appropriate, as it considers the malleable nature of attitudes, whilst at the same time describing attitude as a tendency stored in memory, highlighting its connection to past experiences, reactions, and thus consistency. Moreover, in this way the term "tendency" aims to overcome the diatribe between attitudes as either fixed traits or as changing states, for it assumes that the concept of attitude cannot be restricted in a temporal sense, and that the interaction between experience and individual cognitive processes determines whether specific attitudes change or not.

Further, I suggest an integration between Fishbein and Ajzen's (1975) definition of attitudes and Eagly and Chaiken's (2007), as this helps to specify that beliefs about an object precede attitudes, and thus that attitudes derive from beliefs about attitude objects; nonetheless, the relation is hypothesised to be mediated by the context-specific interaction of both prior beliefs and attitudes with the specific attitude object.

Regarding the focus of this thesis, the types of attitudes under analysis are defined as pertinent to the socio-political realm, that is, to political ideology, more precisely to people's opinions on authority. Oppenheim (1992) argued that attitudes to social issues, the political system and preferences are related to deeper underlying dimensions of attitudes, and define these dimensions in terms of values (Bynner, Ferri, & Shepherd, 1997). Also by other key authors for this work, attitudes—as enduring states—are often defined as core beliefs which bind together many more object-specific ones in a total belief system (Heath et al., 1994).

In the next section I further define the research topic by concentrating on the definition of socio-political attitudes.

2.4 Defining socio-political attitudes and attitudes towards authority

The more specific context of interest for this project within the attitude research field is directed towards so-called socio-political attitudes, considered as the constituents of the structure of political ideology, cognitively organised along various dimensions of preference (Jost et al., 2009). Jost et al. (2009) defined political ideology as shared interpretations of the social world, requiring one to normatively specify “good and proper ways of addressing life's problems, and can be considered as relational, epistemic, and existential needs or motives” (2009, p. 309).

The specific topic of this work concerns the definition, measurement, socio-demographic and psychological factors affecting people's attitudes to authority, a construct that will be positioned within the more general social-political attitudes structure.

2.4.1 Support for authority: ideological context

As Kim (2012) pointed out, Max Weber's main concern was the explanation of individual autonomy and freedom, and how this relates to the secular social changes driving to an

increasingly bureaucratic and rationalised society. Weber, in his 1919 essay *Politics as a vocation* (Owen & Strong, 2004), identified three main ideal-types of authority: traditional, charismatic and rational-legal, and ascribed the latter to modern, post-WWI Western states' political organisation; the historical change happening in the social context within which Weber developed his tripartite definition of authority comprises the erosion of small-scale units of production in favour of large corporations, hence an increase in the proportion of the working class people living out of self-financed activity migrating into jobs in bureaucratic organisations with defined hierarchical structures, and guided by a formal authority figure (Beetham, 1989). Moreover, the extension of the right to vote to the working class pushed forward the need for changes in the states' social agenda, undermining the traditional roles of politicians and pushing towards collectivistic views. At the same time the political and economic realms were increasingly controlled within geographical units represented by the nation-state, and liberal capitalism and its ideology of classical liberalism was being replaced by national protectionism and imperialism, with consequences that survived Weber and that led to the affirmation of authoritarian regimes and geo-political conflicts. Weber's solution to the problem of the interaction between individual freedom and an increasingly bureaucratised society was the development of an elitist view of political participation, where individual freedom allows the development of superior qualities, able to make an impact on the whole society— i.e. bourgeois individualism (Ibid.). Beetham contrasted Weberian liberalism with British new-liberalism, which posits itself, instead, on the natural rights and collectivist tradition. Moreover, new-liberalism (also called social liberalism) is derived from the critique of classical liberalism and of the laissez-faire doctrine, and here freedom is seen as a universalistic and egalitarian value of self-realisation, which has been historically undermined by widespread socio-economic inequalities perpetuated by excessive coercion and socio-political control on the individual, in favour of the economic development (Hobson, 1909; Seaman, 1978). Hence, in their critique of classical liberalism, the main point of attrition between Weber and the new-liberals is to be found in freedom as a value for individuals to develop personalities and characteristics that enable them to become effective and legitimate leaders, for the former, and freedom as a universal, natural right that enables equality in society as a whole, closely related to Marxist thought, for the latter; however, both share the same definition of and need for a ruling class: a selected group of individuals, legitimised by the rest of the citizens in the nation-state through a set of formal rules and laws. I do not aim here to discuss the many different connotations of the political sphere, rather, that the aim

of the discourse around Weberian liberalism and new-liberalism wanted to clarify the ideological contexts within which Weber's definition of legal-rational authority was developed.

2.4.2 Conceptualising attitudes to authority

Contemporary political science research and related disciplines are still strongly anchored to Weber's and new-liberalism's accounts of the ideological views on the relationship between individual and legal authority.

There is a high consensus amongst scholars regarding the mapping of individuals' worldviews—or political ideology—onto a continuum defined, depending on the specific discipline and socio-political contexts, as materialism/post-materialism (Inglehart & Welzel, 2005), left-right (Billig, 1984; Jost et al., 2009; G. D. Wilson & Brazendale, 1973), conservatism/liberalism (G. Evans et al., 1996; Jost, 2006), and authoritarianism/liberalism (Duckitt, 2001; Harmel & Gibson, 1995). The definitions given for these three continua are not the same, and they are considered here separately. Inglehart and Welzel (2005) affirmed that socio-economic development affects two key dimensions of cross-cultural variation: one related to industrialisation and the other to the rise of post-industrial society, with the first one acting towards the secularization of authority and the latter on emancipation from authority; in particular in post-industrial society, where the second phenomenon is rooted, authority is seen as internalized within people themselves, producing at the aggregate level the expansion of self-expression values and activities. Self-expression values are also defined by the authors, as previously conceptualised in Inglehart (Inglehart, 1997), as postmaterialist, which give more importance to aspects of quality of life, whereas materialist values, on the opposite side of the continuum, attribute importance to economic and physical security.

The liberalism-conservatism continuum stems from the post-World War II research on the ideological causes of fascism and Nazism, amongst which the California F scale of Adorno and colleagues (Adorno et al., 1950) represents one of the most successful outcomes in terms of popularity in the socio-psychological and political literature. Another relevant piece of research on these topics is Wilson's work on conservatism between 1950 and 1990, in particular his work on the critics to Adorno (G. D. Wilson, 1973) and the construction of the Wilson-Patterson Attitude Inventory scale (WPAI) (G. D. Wilson &

Patterson, 1968). The WPAI (made of 50 questions) is an instrument to measure the conservative type introduced in earlier theoretical work. A main dimension was identified as a continuum from conservatism to liberalism, with four sub-dimensions: ethnocentrism-intolerance, anti-hedonism, religion-puritanism and militarism-punitiveness. This same author individuated four theoretical viewpoints on conservatism (G. D. Wilson & Brazendale, 1973): resistance to change, tendency to play safe, distinction between generations and finally, internalisation of parental values. Following Wilson's work, Sidanius and Pratto's (1999) social dominance theory (SDT) described mechanisms of the formation of social hierarchies, where attitudes in favour of social dominance are seen as right-wing.

Billig (1984) offered an in-depth and critical analysis of the political ideology continuum defined by the classical left versus right poles, mirroring party politics; Jost et al (2009) affirmed that the liberalism-conservatism continuum is being substituted in the US with the synonymous left-right, reflecting the same positions as the former on preference for change versus stability, which is in turn associated historically and politically with views on the "proper role of hierarchy, authority, and inequality" (2009, p. 310).

Ray (1982) proposed a second dimension along which socio-political attitudes are organised, that is, the libertarian-authoritarian continuum, and separate from the liberalism-conservatism one. The author continued by specifying the meaning of the extremes of both continua: thus conservative people are generally in favour of the businessman's freedom to profit, whilst liberals are in favour of the individual's freedom. Hence this author suggested that the libertarian-authoritarian continuum is able to discriminate between opinions on different kinds of freedom (mostly individual- versus market-related) borne by both radicals and conservatives.

More recently Ray's idea has been developed with attitudes to authority as forming a separate continuum from—although correlated with—attitudes to social change and diversity (G. Evans et al., 1996; Eysenk, 1970; Jost et al., 2009); others identified two interrelated sub-dimensions of political ideology as based on opinions on economic versus social conservatism (Lipset, 1960). Also, the literature on what makes good democratic citizens has identified two major polarities along which socio-political attitudes are organised: i) xenophobia versus altruism, which define people's orientation towards out-groups and outsiders, more specifically, and ii) authoritarianism versus liberalism, and

regarding people's orientation towards those considered as insiders (Galston, 2001; Inglehart & Welzel, 2005; Sullivan & Transue, 1999).

Evans et al. (1996) confirmed that the structure of social attitudes can be described by a dualistic model in the British electorate, with general orientation to economic welfare on the one hand and individual liberties on the other, the combination of which seemed to organise attitudes towards more specific issues and objects. Through an empirical model based on data from the 1989 British Social Attitude survey (BSA), and items developed for the British Election Study (BES), Heath, Jowell, Curtice, Field, & Witherspoon (1991) claimed that the two continua of libertarian (liberal)/authoritarian and socialist/laissez-faire (or left-right) summarised a broad range of previously measured social attitudes. The items aimed to tap freedom of thought and conscience, freedom of association and freedom to pursue one's own course of life, collectivism and individualism, government intervention and free enterprise, economic and political equality.

Park & Surridge (2003) highlighted how recent analysis of individual's worldviews, or their value systems, have been operationalised by taking into account for the British adult population the two value dimensions of Left-Right and Libertarian-Authoritarian as cross-cutting. The authors explained that the Left side of the former continuum aims to describe people concerned with working-class interests, whilst the Right with the middle classes in relation to socio-economic issues; the Libertarian-Authoritarian continuum is operationalised as opinions towards stiffening sentences for people who break the law, the death penalty, obedience to the law even if wrong, respect for traditional values, obedience to authority for children, and finally on the censorship of films and magazines as necessary to uphold moral standards; agreement with these statements defined levels of authoritarianism in the population subject of their study.

Recently, in the British context, Deary et al. (2008b) found that 50 items measuring ten socio-political attitude scales were reducible to four factors, which were in turn reduced to two, namely liberal social attitudes and political trust. Schoon et al. (Schoon, 2010) also reached similar results.

Drawing on the above approaches, and particularly on Duckitt and Bizumic's (Duckitt & Bizumic, 2013) work, here I accept the definition of authoritarian attitudes as "support or opposition for the subordination of individual freedom and autonomy to the collective and

its authority” (Ibid, p. 843); in particular, I define attitudes to authority as positive or negative evaluations of the controls and sanctions applied by the state on its citizens. For instance, by considering the law as a tool of social organisation and a reference for social norms under the claim of equality in treatment, there are cases in which particular laws are seen as wrong—for example, restrictive immigration laws by those in partnership with a foreign person. Or again, censorship could be seen by some as a particular law that restricts individual access to information; unconditional acceptance of the law and of censorship in the context of this work would indicate a total subordination of individual freedom to the norms imposed by society. Subordination to the rules imposed by the state could also be expressed by acceptance of harsh forms of punishment for transgressors, such as the death penalty, which could be seen possibly as the ultimate manifestation of the collective power over the individual, or as Weber defined it, of the legitimated monopoly of force by the state (Owen & Strong, 2004; C. R. Weber & Federico, 2013).

2.4.3 Why attitudes to authority

As compared to the constructs discussed above of materialism/post-materialism (Inglehart & Welzel, 2005), left-right (Billig, 1984; Jost et al., 2009; G. D. Wilson & Brazendale, 1973), conservatism/liberalism (G. Evans et al., 1996; Jost, 2006), as well as ethnocentrism and social dominance orientation, the choice of assessing attitudes to authority was driven by the importance that this latter construct has acquired in the social sciences literature as the driver of more specific types of attitudes, i.e., as a value-oriented type of attitude (Jost et al., 2009; Katz, 1960; Schwartz et al., 2001). Inglehart’s theory of intergenerational value change, based on the empirical evidence collected through a cross-cultural comparative survey from the 1970s up to the early 2010s, makes use of the continuum materialism/post-materialism to indicate the cultural shift in advanced industrial societies from goals that emphasise economic and physical security to self-expression and quality of life towards a “promotion focus” on individual autonomy, initiative and creativity; this author argues that socio-economic development fosters this value change as it changes the social situation of entire populations. This latter claim, although auspicious, does not seem to be in line with some of the most recent value shifts in socio-economically developed countries, which appear to go in the opposite direction to that predicted by Inglehart; namely, many political scientists agree on the fact that socio-economic development has been creating new, further social cleavages such as those stemming from increased level of

immigration in the richest countries and more general ethnic changes in those countries with an older history of large-scale immigration. For instance, Kaufmann (2004, 2016) goes as far as saying that “Why is Trump, Brexit, Höfer, Le Pen and Wilders happening now? Immigration and ethnic change” (Kaufmann, 2016), and underscores that these large-scale societal changes are perceived as undermining the portion of the white electorate that defends the status quo as opposed to those who, more or less reluctantly, are more willing to accept change. This type of recent political developments, that materialised in the often unpredicted electoral preferences in consolidated Western democracies, have brought to the fore a re-consideration of auspicious theories of social change, mostly regarding the connection between socio-economic wealth and ideological structures, i.e., values and attitudes, with an increasing importance attributed by social scientists to the value-oriented dimension of authoritarianism, intended as we do in this work as respect for authority. The materialism/post-materialism measure is therefore considered in my work as too broad to be able to capture the contemporary importance assumed by the construct of authoritarianism, which entails respect for authority as a mean to maintain the existing social order.

The Left-Right continuum on its own, as well, seems to have lost at least part of its explanatory power when it comes to choices regarding the type of leadership and political programmes preferred by citizens of Western countries, especially in relation to the loss of the historically more internationalist (cosmopolitan) look of the Left Parties (Heino, 2016), which, for instance in politically high-impact cases, have more or less officially stepped back, or at least been confusing with their electorate; a stark example is given again in the case of the dissonant stances of the Labour Party’s leaders on the EU membership issue and the rights of the EU citizens in the UK. Control of the borders and national sovereignty on economic policies, hence restrictions on liberties and rights of non-natives have become more “acceptable” for the Left-Wing electorate, and their representative Parties as ways to preserve the life chances of the natives. Social dominance orientation (Sidanius & Pratto, 1999), ethnocentrism and economic conservatism (Lipset, 1960; Panebianco, 2014; G. D. Wilson, 1973) together help in the interpretation of the attitudinal structure that may underlie the disposition of the left-wing electorate and their parties towards immigration, however I argue here that the rhetoric behind the unacceptance of “diversity”, of “outsiders” is the need for control and order that is born from the feeling of threat to the status quo, i.e., from the level of uncertainty brought forward by changing circumstances

(Eidelman & Crandall, 2009; Jost et al., 2009; Oskarsson et al., 2015); this leads those who feel less equipped to deal with the new to seek for some sort of protection, often in the form of closure and limitations to the opportunities of the outgroups: hence to rely on an authority figure to do so for them, with increasing levels of respect for the chosen authority as a function of the perceived threat.

Finally, if direct attitudinal paths were to be found from parents to their children, we could expect a strong relationship between authoritarianism as measured by the parents' attitudes to child rearing and child obedience and their offspring's views on obedience to social norms in the form of attitudes to legal authority (Feldman, 2003).

2.5 Theoretical background on determinants of attitudes to authority

In general, as I have hypothesised that attitudes are intervening psychological traits in the relationship between an object and the overt expression of feelings, beliefs and behavioural dispositions towards that same object, I now account for the context within which this process evolves—that is, further individual-level characteristics interacting with and as a product of the surrounding environment.

My focus will be mainly on family-related contextual variables. The following sections aim to identify some of the most relevant covariates of social attitudes at both levels.

2.5.1 Socio-demographic individual-level determinants

A key and robust correlate of authoritarianism and conservatism found in the literature is social class (Napier & Jost, 2008; Paterson, 2008). Duckitt's (2001) review of the psychological literature, and Lipset's (1960) more sociological approach found that the more disadvantaged social classes tend to be more liberal on issues concerning welfare state and income taxation, whilst more conservative and authoritarian on topics such as immigration legislation and ethnic minorities. In the process of validation of Lipset's hypothesis, de Regt et al (2012), using a modified version of Altemeyer's RWA scale in the European Value Survey (EVS) 2008 across 30 countries, showed that individuals belonging to the working class are more authoritarian, even after allowing for cross-country differences in socio-political contexts and social development pathways. Jost et al.

(2004) also point to socio-economic class differences in RWA, political and economic conservatism, with low-socio-economic-success individuals scoring higher. At the individual level, other correlates of authoritarianism in the literature are: educational level, often seen as a key moderator of the relationship between attitudes and social class, with lower education associated with higher conformism and authoritarianism (Lipset, 1960; de Regt, Smits, & Mortelmans, 2012; Schoon et al., 2010; Zakrisson & Ekehammar, 1998), and life-long learning associated with attitude change towards more liberal stances (Bynner et al., 2003; Preston & Feinstein, 2004); gender, with most studies underscoring either higher authoritarianism for males or no gender effect (Poortman & Van Tilburg, 2005; Pratto, Stallworth, & Sidanius, 1997; Whitley & Aegisdottir, 2000) ; and age, with attitudes tending towards more conservative and authoritarian positions as age increases (Danigelis, Hardy, & Cutler, 2007).

Two further correlates of authoritarianism are political awareness and interest (Quintilier, 2013; Zaller, 1987, 1992), and religiosity. High socio-political participation, hence awareness, and low cynicism have been found to be associated to more liberal stances on moral issues (Singh & Dunn 2015; Bynner & Ashford 1994). Conservatism and acceptance of the status quo, which authoritarianism supports, are seen as constructs describing processes of anchoring to cognitive reference points, so that existing states are compared to possible alternative states, if even alternatives are contemplated, through recognition of familiarity, frequency of exposure and primacy (Eidelman & Crandall, 2009). Political interest, awareness and participation can be seen as active, conscious interaction of the individual with the political and ideological system in which she is embedded, and in order for the individual to think differently from the way which is imposed by the mainstream political discourse, from the status quo, Eidelman and Crandall refer to a cognitive process that allows individuals to think of and simulate alternative to past and present conditions, i.e., counterfactual thinking. Counterfactual thoughts are considered as more effortful than the acceptance of the status quo, as they require motivational sources to activate them, or triggers; clearly, interest in politics is what pushes people to pay attention to those triggers and to think about them and elaborate potential alternatives.

Finally, the relationship between religion and socio-political attitudes in general sees a fertile terrain for research, as many studies around the world are trying to trace how one influences the other (L. R. Jacobs & Shapiro, 2011; Putnam & Campbell, 2010), as well as

to account for the impact of socialization processes on both (Pearce & Thornton, 2007; Voas & Crockett, 2005). In particular, the relationship between religion and attitudes to authority has a long record, and seminal was the work by Weber (M. E. Spencer, 1970; M. Weber, 1954), Inglehart (Inglehart & Welzel, 2005) and Schwartz (Schwartz, 1994) on the relationship between secularization and the development of the concept of individual autonomy in terms of self-expressive values and attitudes; for these authors, valuing tradition means endorsing moral absolutism, strict morality, and respect for authority. Miles and Vaisey (2015) indeed, found that conservatism values consistency with divine laws and self-control, as these contribute to maintenance of the social order, hence the status quo.

2.5.2 Cognitive determinants

Studies on pro-social attitudes such as generalised trust (Sturgis, 2010), and political ideology and participation (Adorno et al., 1950; Van Hiel et al., 2010; G Hodson & Busseri, 2012; Jost et al., 2003), and the relationship between these and cognitive ability have shown that right-wing ideologies, seen as socially conservative and authoritarian, are predicted by cognitive ability: also in relation to what I said above regarding political interest and counterfactual thinking, cognitive abilities are seen as key characteristics in the process of forming opinions on other people and circumstances affecting the status quo, so that individuals with lower cognitive ability gravitate more towards those ideologies that tend to maintain social order and provide psychological stability, hence a reduction of dissonant information (Festinger, 1962). Eagly and Chaiken (1993) underscored the main results of studies on the relationship between beliefs' complexity and attitudinal extremity. Thus, it has been found that political extremists of both the left and the right in the United States and Great Britain presented less integrated and less complex reasoning than politicians closer to the middle of a political spectrum measured along the continuum liberalism-conservatism; moreover, in the same research context it has also been shown that people on the centre-left of the same political spectrum bear the maximum level of what Tetlock (1983) defined as integrative complexity. In conclusion, research agrees on the instance that complexity of thoughts (of opinions, of beliefs) fosters attitudinal moderation regarding political issues. A recent approach that investigates individual determinants of social attitudes is proposed by Deary et al. (2008a, 2008b) and Schoon et al (2010). Within the British context described by the two longitudinal projects the

National Child Development Study 1958 (NCDS 1958) and the British Cohort Study 1970 (BCS70), a set of psychometric scales measuring social attitudes of cohort members at age 33 and 30, respectively, were used to measure a general latent trait which underlies attitudes towards antiracism, pro-gender egalitarianism and social liberalism; a second dimension of social attitudes was political trust. Their aim was to demonstrate the influence of cognitive ability (labelled as *g*) during childhood on liberal attitudes in adulthood, i.e. as an individual-level determinant of attitudes in adulthood.

However, the models proposed in the studies by Deary et al. (2008a, 2008b) and Schoon et al (2010) do not take into account the influence of parents' social attitudes. It is argued here that a moderately strong correlation between *g* and parental social class hides the role of parental characteristics in facilitating or impeding the development of abilities measured as dimensions of general intelligence, as well as their relationship with the latent trait of social attitude as defined by the researchers. Namely, their models miss a control for a potentially osmotic flux of cultural reproduction in an intergenerational perspective.

2.6 Change/stability of socio-political attitudes over the life course

The strength of attitudes has often been conceptualised as persistence over time (Petty et al., 1997); this could be seen as a product of the relationship between attitudes and experience, especially in terms of emotional experiences connected to the attitude object and able to carvel or reinforce prior attitudinal assets. Coaley (2009) stated that attitudes change as people learn to associate them with positive or negative circumstances or outcomes.

Bogardus (1931) affirmed that human nature is one of the most modifiable things in the world (see also Ellwood, 1909) although recognising the importance of group interaction in the definition of human nature. Following this perspective, the human being is considered as the most plastic of organisms—however, it is also acknowledged that most attitudes are not consciously manifest, as they are largely passed on by social inheritance (Reuter, 1923). Social inheritance has to be seen as group status and recognition, which the holder of a certain attitude seeks to achieve; any attitude change may be “slight or profound, gradual or abrupt, concern a single or a few attitudes or a large related group” (Reuter, 1923, p. 101). In particular, when the change is radical, the new attitude orientation could be seen as a departure to seek approval in a new or different group; if the

change is permanent, then the person could be said to have accommodated the fund of values characteristic of the new group within his/her own value system.

Thus, the tension between individual attitudes towards an object and group/societal values is a driver of change at both the individual as well the group/societal level, as change in attitudes are hypothesised to be accompanied by the appearance of new values. The concept of *social identity* (H Tajfel, 1981), which is shaped during the life course by personal experiences within different social groups, has been used as the bridge between individual attitudes and societal (group) values (Hogg & Smith, 2007; Irwing & Stringer, 2000; Smith & Hogg, 2008). In this respect, the social identity theory emphasises the interconnections between individual traits and group/societal norms, such as a reference group's values.

At the aggregate level of analysis, the mainstream theory on the change of socio-political attitudes during the life course concentrates on the differences between younger and older cohorts and states that older people's attitudes are more stable than those in younger people, and are therefore more resistant to change (Alwin, Marsden, & Wright, 2010; Krosnick & Alwin, 1989). In addition to this, Peterson and Duncan (1999) argued that the aging population of developed countries will imply a growth of the conservative and less flexible social temperament. Nonetheless, recently, an opposite view has been proposed: through the analysis of data on socio-political attitudes amongst the U.S. public from 1972 to 2004, Danigelis (2007) stated that "change is as common among older adults as younger adults" (2007, p. 823). Attitudes towards the death penalty, severity of punishment for criminals, and police funding are viewed as measures of issue-based conservatism and are related mostly to the peripheral aspects of authoritarian attitudes (Jost et al., 2003). These peripheral aspects are "likely to vary considerably in their ideological relevance across time" (Ibid.: 342), depending on interactions between the societal and individual level circumstances, which then define their relevance compared to other socio-political issues of the time.

However, for the British electorate, Evans et al (1995), Sturgis (2002), and Cheng et al. (2011), by using panel data, showed that the socio-political attitude scales used to analyse attitude change amongst participants in, respectively, the British Social Attitudes survey (BSA), the British Household Panel Study (BHPS), the NCDS 1958, and the BCS70 presented coherent factor structures: the measures were stable over time, the scales were

associated and, finally, associations with measures of voting behaviour supported the predictive validity of the measures.

Finally, in relation to a key variable used in this work, i.e., cognitive ability, the psychological literature based on experimental studies about individual differences has found that (a) people with higher scores on intelligence tests are less prone to be persuaded to change attitude; (b) those with moderate self-esteem are instead more influenceable as compared to those with higher levels; (c) people with issue-relevant beliefs resist influence on a counter-attitudinal issue; (d) context factors (moods) play an important role in a person's current disposition towards changing their attitude; and finally, (e) personality and subjective norms have to be taken into account to understand mechanisms of attitude change (Petty et al., 1997, p. 631).

2.7 The mechanisms of intergenerational transmission

At the micro, individual level many studies have attributed the origin and development of social attitudes to a combination of factors: family influence and degree of identification with parents and their views (Hyman, 1959; Jennings & Niemi, 1968; Sinclair, Dunn, & Lowery, 2005); peers (Harris, 1995; Poteat, 2007); school, with its effect on civic culture and political socialisation (Hesse & Thorney, 1965; Verba, Schlozman, & Brady, 1995); and the media (Hargreaves & Tiggemann, 2003). The literature on agents of socialisation (Abendschon, 2013; Bisin & Verdier, 2011; L. R. Jacobs & Shapiro, 2011) distinguishes between processes of vertical socialisation, that is, from parents to children, versus horizontal or oblique socialisation, that is, from peers, the schooling system and the media, to children. The economic literature also refers to vertical socialisation as direct socialisation; Bisin & Verdier (2011) extensively reported empirical studies' results that suggest correspondence between parental and offspring general preferences and attitudes, from church attendance to generalised trust and gender roles attitudes. However, these authors have also argued on the interaction between direct parental influence and environmental effects related to socio-economic characteristics of the family of origin, which are likely to define the type of school the child will go to, of media consumption patterns that he/she will develop, of activities he/she will take part in during the formation years and later on in life. In order to summarise this mechanism of vertical transmission intermediated by socio-economic and environmental circumstances, Bisin and Verdier (2000, 2011) introduced the concept of *imperfect empathy*, i.e. "a form of altruism biased

towards the parents' own cultural traits: parents care about their children's choices, but they evaluate them using their own (the parents' – not the children's) preferences" (2011, p. 343). On top of this, (in)direct mechanisms related to socialisation costs, which are seen as a function of parental socio-economic resources, are added to the equation, and include time spent with the child, school tuition, etc. A very similar explanatory perspective of the intergenerational transmission mechanisms of cultural traits is given by the cultural-ecological models (Bronfenbrenner, 1979), with the introduction of the concept of *developmental niche* (Super & Harkness, 1997): the child is seen as an active participator in the interactive system defined by physical and social settings of daily life, the cultural settings of child care and rearing, and the psychology of the caretakers in terms of their belief systems. In relation to this, others affirm that parents' child-rearing styles have the largest influence in shaping individuals' cultural traits such as attitudes and values (Benedict, 1934; De Jong, 2009; Lareau, 2002). Similarly to Bisin & Verdier (2011), other authors from a sociological perspective have also taken into account processes of indirect vertical socialisation, e.g. through transmission of parental education and religious values (Bucx et al., 2010; Glass, Bengtson, & Dunham, 1986), following which highly educated, non-religious people have less traditional positions toward family structure and gender ideology than their counterparts. The prominence of one socialization agent over another to explain political participation and interest in general is still a matter of debate (Verba et al., 2005); however, recent research using Belgian panel data found that parents and peers, together with voluntary associations, are the most important, whilst school and media are of limited effectiveness (Quintilier, 2013).

What is looked into in this work is the direct and indirect vertical transmission of attitudes, in particular attitudes towards authority, i.e. how parents' authoritarian child-rearing attitudes translate into authoritarian stances in their offspring in adulthood, whilst controlling for the direct and indirect effects of both parents and offspring's socio-economic characteristics.

Reiss (1997) has individuated three main ways in which intergenerational transmission of psychological traits may happen within the family environment: 1) Passive model: assumes a general genetic inheritance of personality and behavioural traits due to child and parents sharing the same genes that affect a particular behaviour; 2) Child-effects model: the parents do not have a function in the child's development of behaviour, as the latter is

caused by genes carried by the child; it is the child who influences parents' behavioural responses due to his/her genetic makeup, rather than the parents; 3) Parent-effects model: the parental response is assumed to have an effect on the child's behavioural development, depending on the parents' behavioural response (due to their genetic makeup) to the child's personality.

Harris (1995), on the other hand, stated the importance of outside-family influences on personality and behavioural development in children. In doing so the author referred to Tajfel's (1981) theory of social identity as well as to his studies on social categorisation and how social groups can influence personality. Harris listed five aspects that are important in order to understand how non-shared characteristics influence socio-psychological traits at the individual level:

1. Context-specific socialisation: behaviours are learnt also outside the home and as children get older they are progressively less influenced by the family life and more by the outside world.
2. Outside-the-home socialisation: as soon as children interact with the outside world, they start identifying themselves with a number of social groups they begin sharing norms with.
3. Transmission of culture via group processes: even the parents' personality is the result of their socialisation with a number of different groups, thus of their identification with their own social groups; in this respect individual norms acquired from the family are kept in the outside world only if they are shared by the groups people identify themselves with. Parents could be seen as a first mediator between individual personality social group identification (social identity).
4. Group processes that widen differences between social groups: personality is influenced during life from groups people identify themselves with as well as from those they do not, defined as out-groups.
5. Group processes that widen differences among individuals within the group: groups have hierarchical structures and people's personality is related to the position they occupy in a group; moreover, the same person may have different positions in different groups. Also, his/her position may change over time in relation to changes in his/her personality.

Petty et al (1997) in their review have highlighted the onset of clusters of studies aiming for an analysis of the genetic basis of attitudes; the literature up to that point had largely focused on the role of experience in shaping individuals' attitude formation. In this perspective, the hypothesis is that attitudes with a substantial genetic base will be stronger than others (Tesser, 1993). Some authors asserted that the trait-situation question is related to the heredity-environment question (Anastasi & Urbina, 1997; Plomin & Asbury, 2005). When this latter instance is translated into my research project, for example, if attitudes are hypothesised to be relatively enduring individual traits, heritability is more likely to be observed; at the same time, environmental/contextual influences may contribute to situational variance (for both within- and between-individual levels), as well as to stability if the environment itself shows consistency. As already discussed in the introductory chapter of this thesis, biological transmission of socio-political attitudes could be seen as an alternative explanation to the one proposed here, which is instead centred around socio-cultural mechanisms; further research developments should be sought to try to integrate both explanations of attitudes formation, however the focus of this work, and its methodology, aims to assess the latter.

Research around different environmental influences on personality has grown in complexity and the concepts of within-family and outside-family environments have acquired more and more importance. Harris' work aimed to underlay pitfalls in genetic studies of personality and socio-psychological traits in general, as their approach tends to oversimplify family influences. Thus, in terms of assessing both environmental and genetic factors influences on personality traits, Bouchard and Loehlin (2001) suggested taking account of interaction between environmental and genetic influence, developmental influences (personality affected by different genes and environment at different stages of life), assortative mating (related to parents' personality traits similarities and dissimilarities) and finally, evolution (adaptation of needs to the surrounding environment).

2.8 Intergenerational transmission of attitudes to authority and childhood cognitive ability

This research seeks to assess the mechanism of transmission of attitudes to authority as a cultural socialization process, taking into account both the direct attitudinal pathway

(Jennings & Niemi, 1968), as well as the direct and indirect social milieu pathways (Abendschon, 2013; Bisin & Verdier, 2011; Glass et al., 1986).

Adorno et al (1950) have already underscored the nexus between out-group prejudice (and hence social dominance orientation) and intelligence by declaring from their results that “the most ethnocentric are, on the average, less intelligent than the least ethnocentric” (1950, p. 284). Lipset (1960), and Almond and Verba (1963) have shown that the social class differences in socio-political attitudes was moderated by educational level, and this was further confirmed by more recent studies (Bynner et al., 2003; Nie, Junn, & Stehlik-Barry, 1996; Osborne & Sibley, 2015).

Cognitive ability has been suggested by many as a factor that precedes both educational level and occupational class in the characterisation of an individual’s ability to evaluate issue positions and take a reasoned stance towards socio-political attitudes (Deary et al., 2008a; Onraet et al., 2015; Sturgis, 2010). Moreover these authors highlighted the suitability of measures of cognitive ability in childhood for the prediction of authoritarianism in adulthood, as this point in an individual’s life course precedes the formative years for the development of political ideology. I also add here that within-family cultural socialisation might have already played a key role in the definition of both cognitive ability and the level of adherence to societal norms, following from studies that underscore the relevance of early-life cognitive and social developmental stages on both cognitive abilities and political ideology and participation (Bronfenbrenner, 1979; Glass et al., 1986; Jennings & Niemi, 1968; Jennings et al., 2009).

Various studies (Deary et al., 2008a, 2008b; Schoon et al., 2010) showed indeed that cognitive ability in childhood at an age that pre-dates major educational differences in attainment—i.e. around the age of 10—predicts socio-political attitudes, even after controlling for parental background, and offspring’s educational and job level in later life: people with higher scores on this measure engage more in the democratic process, and endorse political ideologies of the centre-left, i.e. the social-liberal side of the political ideology continuum.

Moreover, Flouri (2004) found that in the 1970 British Cohort Study (BCS70), mothers’ authoritarian child-rearing attitudes predicted support for authority when the CMs were aged 30, after controlling for mothers’ values (liberalism and support for working

mothers), CMs' general ability and emotional/behavioural problems in childhood, family structure, CMs' physical and psychological health, as well as partnership status in adulthood, with the larger effects being found mostly for parental social class and economic disadvantage.

Finally, regarding the socio-economic gradients in child cognitive ability levels and development, many have shown class-based inequalities and even increasing gaps over time (Feinstein & Bynner, 2004; Sindall, Sturgis, Steele, Leckie, & French, 2015).

2.9 Conclusions

This work is centred on the assessment of the mechanism of intergenerational transmission of social attitudes, in particular of attitudes to authority from parents to their offspring.

The literature covered in this chapter aimed to delineate the key theoretical frameworks of reference for this thesis, covering in particular the following themes: i.) Definition and measurement of authoritarianism, and of attitudes to authority; ii) stability of socio-political attitudes over the life course, specifically in adulthood; iii) description of major studies on political socialisation and on intergenerational transmission of authoritarianism, including its socio-economic determinants; iv) the contribution of a key, individual-level psychological variable, e.g. cognitive ability in childhood, to the assessment of social attitudes and intergenerational transmission.

3 Data and methods

This chapter examines the methods applied to the analysis of the mechanism of intergenerational transmission of attitudes to authority from parents to their offspring. I start with a description of the data used and the justification for the choice of data points and variables; then the methods are described; the final section gives an overview of the research questions across the three studies and of the methods employed to answer them.

3.1 *Participants*

3.1.1 Data: The 1970 British Cohort Study

The research presented employs secondary analysis of a large-scale data set. The 1970 British Cohort Study (BCS70) is a study representative of the British population born in one week during 1970; I refer to this as Sweep 0. A total of eight further main sweeps were carried out after the first data collection, from 1975 to 2012, and another sweep of data collection is being carried out in the year 2016. The available survey sweeps and the respective sample size reached in each of them are reported in Table 2.

Table 2 The 1970 British Cohort Study sweeps, year, Cohort members' age and sample size

Survey sweep	Year	Cohort member's age	Achieved sample size
0	1970	0	17,196
1	1975	5	13,135
2	1980	10	14,875
3	1986	16	11,622
4	1996	26	9,003
5	2000	30	11,261
6	2004	34	9,665
7	2008	38	8,874
8	2012	42	9,841

Sample sizes reported in Table 2 refer to the productive cases available in the data files made available by the UK Data Service (<https://www.ukdataservice.ac.uk/>); by productive cases it is meant those cases for which information on the key variables of the BCS70 data

set are available. Slightly different figures may be found in different sources, mostly due to the continuous revisions of the UK Data Service data file for the BCS70 longitudinal sample over time (Hawkes & Plewis, 2006; Mostafa & Wiggins, 2015; for further information please see Plewis, Calderwood, Hawkes, & Nathan, 2004).

The BCS70 sample was a census of all babies born (including stillbirths) after the 24th week of gestation from the 5th to the 11th of April 1970, hence no sampling strategy was employed to select the participants in the study, with an estimated proportion of missing cases between 2% and 5% for the first sweep in 1970 (Institute of Child Health, n.a.). A recent data set reporting outcomes of responses over time for this study contains a total of 19,006 cases for the longitudinal sample, which includes the original cases collected in 1970, plus those that were added up to the year 1986, as up to that year immigrants born in 1970 and living in GB in the sweeps from 1975 to 1986 were added (Plewis et al., 2004).

The BCS70 also contains information on the CMs' parents' attitudes, collected in the 1975 sweep through a self-completion questionnaire, and tapping into the following dimensions: attitude to maternal employment, attitude to sex equality, needs of better life for women, authoritarian worldview, and authoritarian child-rearing. Over 80% of the questionnaires were completed by mothers, only around 8% by fathers, and the remaining questionnaires either by both parents or by another person.

Self-completion questionnaires containing items that aimed to measure social attitudes in adulthood were administered to cohort members (CMs) in 1996, 2000, 2004 and 2012, and the range of items covered: politics, voting intentions, social participation, trust in institutions and people, sex equality, law and order, traditional marital values, work, standard of living, life satisfaction, feelings on life control, religious affiliation and environmentalism.

Childhood cognitive ability was measured amongst all the available CMs in the 1975, 1980 and 1986 sweeps, via, respectively, five tests at age 5, eight at age 10 and five at age 16; extensive studies on the psychometric properties of the tests have been carried out for age 5 and 10, whilst age 16 tests have been used—until recently—less extensively, due to fieldwork difficulties during data collection (Parsons, 2014). In this work I use the data on cognitive ability measure at age 10 in 1980.

During the first three sweeps of the BCS70, information was collected from parents by health visitors, teachers and head teachers, and also by doctors in the fourth sweep in 1986. From 1996 onwards questionnaires were administered directly to the CMs only, with a mix of computer-assisted personal interview and self-completion questionnaires (Plewis et al., 2004), apart from the sweeps in 1996 and 2008, which were carried out through, respectively, a postal survey and a telephone interview. Self-completion questionnaires in 2000 and 2012 were used to collect sensitive information, in particular on attitudes and values, social participation and lifestyle.

3.1.2 Why the 1970 British Cohort Study

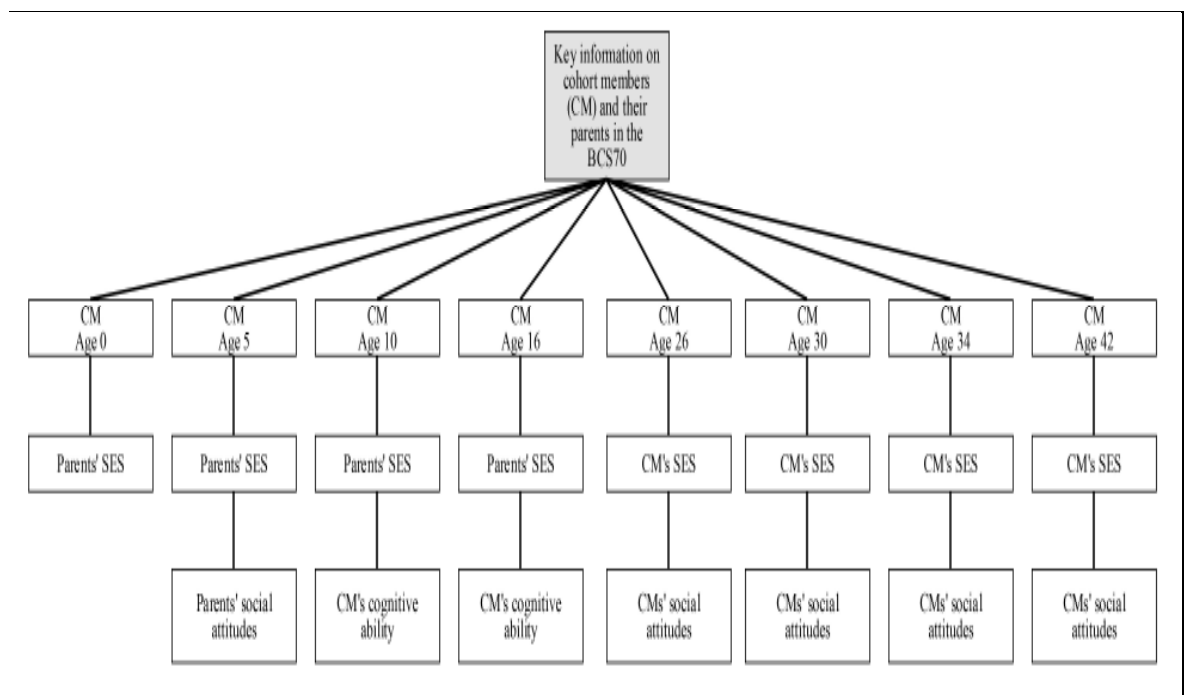
After reviewing some of the principal data sets available, the most appropriate for the present work appears to be the BCS70 for two main reasons: first of all, it allows for the assessment of inter-individual differences in intra-individual change (Lynn, 2009; Singer & Willett, 2003), as this study is based on a pure longitudinal design, hence offering repeated observations of the same individuals (Dale & Davies, 1994); secondly, it contains information for the study of intergenerational transmission of socio-political attitudes from parents to their adult offspring.

The choice of a single-cohort study such as the BCS70 was driven also by the theoretical need to observe individual-level change under the assumption that within a single cohort the degree to which certain historical events influence their members is largely uniform in terms of their generalised effects, i.e. *ceteris paribus* the individual trajectories of change/stability in socio-political attitudes over time should be uniform (Olweus & Alsaker, 1991). Nonetheless, under what is defined as a differential effects problem, even members of a same birth cohort might have been exposed to the same historical events in different ways and degrees—as a function of, for instance, a different position in the social hierarchy, hence life-chances—as well as socio-geographical differences, namely countries and regions characterised by their different organisation of the socio-economic structure. Rosow (1978) reported the sociological interest in the concept of cohort, alongside the other two theoretical effects of time as historical events and time as life-course development in terms of ageing, and gave a definition of it as identifying “persons born (or entering a particular system) in a given year or period who then age together” (1978, p. 66).

As far as socio-demographic characteristics of both family of origin and cohort members are concerned, this study provides its users with detailed data. In sum, BCS70 is a data set rich in the types of information necessary to tackle the proposed research questions.

Figure 3.1 gives an illustration of the type of information available in the BCS70 data set, in terms of key variables relevant for the analysis, and hypothesised connections.

Figure 3.1 Key information available in the BCS70



3.1.3 Attrition and non-response

Longitudinal data sets are prone to various issues of missing data, which have been exemplarily discussed by many (Hawkes & Plewis, 2006; R. J. A. Little & Rubin, 1989; Pampaka, Huthcheson, & Williams, 2016). For longitudinal studies in particular, the first distinction to be made is between unit and item non-response, where the former identifies the lack of information on a case for one or more sweeps of data over time, whilst the latter refers to missing information for one or more survey questions for the available cases; the potentially inaccurate inference from estimates deriving from unit non-response is usually considered as selective sample bias, as it could be that the answers given by respondents are different from those of the non-respondents (Plewis, 2007). Assumptions are made

based on the hypothesised mechanism or distributions of missingness, and valid for both unit- and item-nonresponse (Rubin, 1976). consisting of: 1) missing completely at random (MCAR), where the available cases can be considered as a random sample representative of the original sample at the previous point of data collection, such that results on the complete cases can be generalised to the target population but with larger standard errors, hence lower precision of the estimates as per the loss of statistical power; 2) missing at random (MAR), where the reasons for incompleteness are related to other observed variables in the data set, but not to the outcome under analysis—however, the remaining cases cannot be considered as representative of the original sample, hence of the target population as per the bias introduced by differences in other observed characteristics such as gender, age and social class; 3) missing not at random (MNAR), where the missing data are non-ignorable for the correct inference from complete cases to the previous sample, hence to the target population. In this third scenario, the value for the missing observation is related to the content of the variable of interest as well as to observed characteristics. Table 3 shows the response outcomes for the BCS70 sample over time. The productive (non-missing) cases are the same as those presented in Table 2 above, whilst the other categories in Table 3 refer to different reasons for missingness over time, such as refusals, non-contact, non-issued questionnaires, CMs that have emigrated, those who have died and other reasons not specified. Moreover it has to be noted that the survey mode changed from personal interview to a postal survey in 1996, and to a telephone interview in year 2008, which in the literature has been found as affecting data quality also in terms of missing data patterns (Engel, Jann, Lynn, Scherpenzeel, & Sturgis, 2015).

Table 3 Response outcome across BCS70 sweeps

	Sweep								
Response outcome	1970	1975	1980	1986	1996	2000	2004	2008	2012
Productive	17,196	13,135	14,869	11,615	9,003	11,261	9,665	8,874	9,841
Refusal	N.A.	N.A.	N.A.	N.A.	66	1,091	1,002	711	1,863
Non-contact	N.A.	N.A.	N.A.	5,775	4,182	2,895	2,003	1,936	1,212
Not issued	1,792	2,016	1,146	595	4,936	2,218	4,832	5,920	3,977
Emigrant	N.A.	N.A.	N.A.	N.A.	34	235	433	458	433
Dead	N.A.	599	610	644	738	790	841	906	988
Other	18	3,256	2,381	377	47	516	230	201	692
Total	19,006	19,006	19,006	19,006	19,006	19,006	19,006	19,006	19,006

N.A. = Not available

I have found a total of 384 missing data patterns in the data for the longitudinal BCS70 sample, which are conducive to 10 major groups, as shown in Table 4 below. Complete, non-missing data across the nine sweeps are available for 18% of the BCS70 CMs, whilst no information is available for 2% of the original members, apart from their identification number. Quite high also is the percentage of those for whom only one sweep of data is available, equal to 13%.

Table 4 Available cases by number of sweeps

Number of sweeps with no information	Frequency	Percentage
0 (Non-missing)	3,488	18
1	2,961	16
2	2,291	12
3	1,729	9
4	1,688	9
5	1,808	9
6	1,366	7
7	884	5
8	2,430	13
9	361	2
Total	19,006	100

Moreover, from further inspection of the missing data patterns it is shown that out of the 2,961 cases with only one sweep of information available, 2,109 were present at the first

sweep only, in 1970. Finally, Table 5 shows the missing data patterns as grouped into monotone and non-monotone, which identify, respectively, those cases which dropped out after taking part in at least one sweep without ever returning—i.e. attrition—and those cases which after dropping out returned to the study in subsequent sweeps—i.e. wave-non-response (R. J. A. Little & Rubin, 1989; Mostafa & Wiggins, 2015).

Table 5 Patterns of missing data in BCS70 (1970 to 2012)

Missing data pattern	Frequency	Percentage
Monotone	5,793	37
Non-monotone	9,725	63
Total	15,518	100

Hence, missing data over time for this study cannot be assumed to be completely at random, as it has been shown that the loss of cases over time for BCS70 is related to observed characteristics of the original sample: observed correlates of attrition are gender, with women more likely to respond than men, especially after the sweep in 1986 when responsibility was transferred from parents to the CMs; marital status of parents, with having married parents at birth reducing attrition; place of residence, with living in London increasing attrition; age of mother at birth; a higher father's social class as increasing the likelihood of participating on further sweeps; for the BCS70 in particular it was found that men from lower social background and less educated parents were more likely to show attrition (Mostafa & Wiggins, 2015; Plewis et al., 2004). Nonetheless the explanatory power of the models used to predict attrition and non-response is low, indicating that a large number of variables affecting the probability of response are not taken into account, such as, perhaps, meta-data related to the conditions surrounding the data collection points; these types of information are not available for the BCS70 (Mostafa & Wiggins, 2015).

3.1.4 CMs' sample description from 1996 to 2012

The CMs' sample characteristics for the three sweeps where questions on attitudes to authority were asked are shown in Table 6.

Table 6 BCS70 Cohort members' sample characteristics in adulthood. Sweeps in years 1996, 2000, 2012

Covariate	1996	2000	2012
Gender, N	9,003	11,261	9,841
% Female	54	51	52
% Male	46	49	48
Education, N	8,399	11,226	9,834
No qualification	6	13	12
%NVQ1 equivalent	17	9	8
%NVQ2 equivalent	41	31	25
%NVQ3 equivalent	11	14	15
%NVQ4 equivalent	21	28	34
%NVQ5-6 equivalent	4	5	8
Occupational Class, N	6,792	9,071	8,269
%Unskilled	3	2	2
%Partly skilled	13	11	12
%Skilled manual	17	21	17
%Skilled non-manual	27	25	18
%Managerial/Technical	33	35	45
Professional	7	6	6
Religion, N	8,722	11,195	8,550
% Christian and other religions	37	74	50.23
% Non-religious	63	26	50
Interest in politics, N	8956	11192	8676
Mean	1.18	1.08	1.29
Standard deviation	0.81	0.87	0.86

As shown in Table 6 above, and in comparison with Table 3, I have cross-sectional complete data on gender at each time point, whilst the remaining characteristics present some missing data, with a maximum proportion of missingness recorded for occupational social class in 1996 (6792 cases available over 9003, around 25% of missing cases); however, for this socio-economic factor, better quality data were obtained in the sweeps in the years 2000 and 2012, for which I have respectively around 19% and 16% of item non-response proportion.

3.1.5 Parents' socio-economic status in 1975

The sweep containing the key information on the parents' generation is Sweep 1 in year 1975, when the cohort members were aged 5. A total of 13,135 cases are on file. Since

Sweep 0 in 1970, a total of 4,061 productive cases were not available in Sweep 1 in 1975, hence the sample loss is around 24%.

The parents' characteristics taken into account for analysis are: mother's age at delivery, parents' highest educational level and highest occupational class. Moreover, in the sweep in year 2012 it was asked whether the CMs were raised according to any religion; this being a piece of information that refers to their family of origin's characteristics, I present the respective percentages in Table 7 below.

Table 7 Parents' socio-economic status, Age and Religion in the 1975 sweep of the BCS70

Parents' characteristics	Sweep in 1975
Education, N	12,727
%No qualification	41
%Vocational qualification	13
%O-level equivalent	21
%A-level equivalent	8
%Other higher qualification	4
%Degree	14
Occupational Class, N	12268
%Unskilled	5
%Partly skilled	13
%Skilled manual	47
%Skilled non-manual	9
%Managerial/Technical	20
%Professional	7
Religion, N	8511
% Christian and other religions	67
% Non-religious	33
Mother's age in 1975, N	12929
Mean	26
SD	6

3.2 Outcome variables for the three studies and selection of time points

3.2.1 Operationalisation of attitudes to authority in the BCS70

The attitudes under analysis in this thesis are those pertaining to the liberal/authoritarian continuum, which is identified in the literature as a dimension of an individual's socio-political attitudes structure (Altemeyer, 1981; Duckitt, 2001; Jost et al., 2003; T. D. Wilson, Lindsey, & Schooler, 2000). In a more recent work Duckitt & Bizumic defined authoritarian attitudes as "support or opposition for the subordination of individual freedom and autonomy to the collective and its authority" (2013, p. 843), and in reference to the more specific concept object of this thesis, I define attitudes to authority as "positive or negative evaluations of the controls and sanctions applied by the state on its citizens".

In terms of operationalisation of the concept, I refer to attitudes to authority as a construct, a conceptual continuum representing levels of agreement on topics involving the link between social control and individual self-expression. In this respect, since Adorno et al.'s (1950) work on definition and determinants of the authoritarian personality profile, there have been different attempts to improve measures of authoritarianism at the individual level, as discussed in Section 2.4, with empirical work on scale construction carried out by Altemeyer (1981, 1996), Wilson & Patterson (1968), Rokeach (1968) and Schwartz (1992) amongst others. These studies could be seen as part of a unified effort to measure social attitudes and values in a large scale perspective, i.e. to construct and apply standardized scales able to discriminate amongst individuals in terms of their level of agreement and disagreement towards a set of opinions and beliefs on social issues; this tradition stems from previous works on quantitative methods for attitudes measurement (Allport, 1935; Likert, 1932; Thurstone, 1931). Following from these works, for instance, based on Rokeach's (1973) Value Survey results, Evans and Heath (1995) stated that the core political values in the British electorate are classifiable into two types: a Left-Right dimension representing socialist versus laissez-faire orientations towards economic and political equality, and a Libertarian (liberal)- Authoritarian dimension concerning freedom of thought, conscience and association as opposed to obedience to an authority figure and sense of security. In particular, a set of questions have been asked in Britain since the first nationally representative surveys on socio-political attitudes, such as the British Election Study (BES) (Heath et al., 1991), the British Social Attitudes Survey (BSA) (Jowell,

Witherspoon, & Brook, 1988 and next BSA reports), as well as cross-national large-scale surveys such as the European Social Survey (ESS) (Curtice & Bryson, 2002).

A particular set of questionnaire items has been used since the first waves of the BES and BSA surveys to empirically measure the position of individuals along the conceptual continua Socialism/Laissez-faire and Liberalism/Authoritarianism, and the psychometric properties of reliability and validity of the scales derived from them assessed (Cronbach, 1951; G. A. Evans & Heath, 1995; Messick, 1989); on a similar set of variables, this was also done by Sturgis (2002) for the British Household Panel Survey (BHPS), confirming the results previously found by Evans & Heath (1995).

In two other large-scale surveys, the two British birth cohort studies the National Child Development Study 1958 (NCDS) and the one employed in this work, the BCS70, using largely the same set of items and both exploratory and confirmatory analysis of the socio-political attitude structure, a scale named interchangeably 'Support for Authority' or 'Support for Law and Order' was identified as having good internal reliability and over-time construct stability (Bynner & Ashford, 1994; Cheng et al., 2011; Deary et al., 2008b; Schoon, 2010; Wiggins & Bynner, 1993). I refer to the items used in these latter studies to identify items as indicators of the construct of attitudes to authority by selecting in particular those items of the Support for Authority and Support for Law and Order that were repeated in at least two of the three sweeps of the BCS70, and considering their face validity I prefer to label the construct as 'Attitudes to Authority'. The respondents were asked to express their level of agreement on a 5-point Likert-type scale (Likert, 1932) ranging from Strongly Disagree (=5) to Strongly Agree (=1) on the following items:

- The law should be obeyed, even if a particular law is wrong (Obey the Law).
- Censorship of film and magazines is necessary to uphold moral standards (Censorship).
- For some crimes the death penalty is the most appropriate sentence (Death Penalty).
- People who break the law should be given stiffer sentences (Stiffer Sentences).

The items Obey the Law, Censorship and Death Penalty were asked in the BCS70 sweeps in 1996, 2000 and 2012, whilst Stiffer Sentences only in the first two. The sample distribution of the items across the three time points is shown in Table 8 below.

Table 8 Attitudes to authority items by Sweep, Valid cases and Total sample

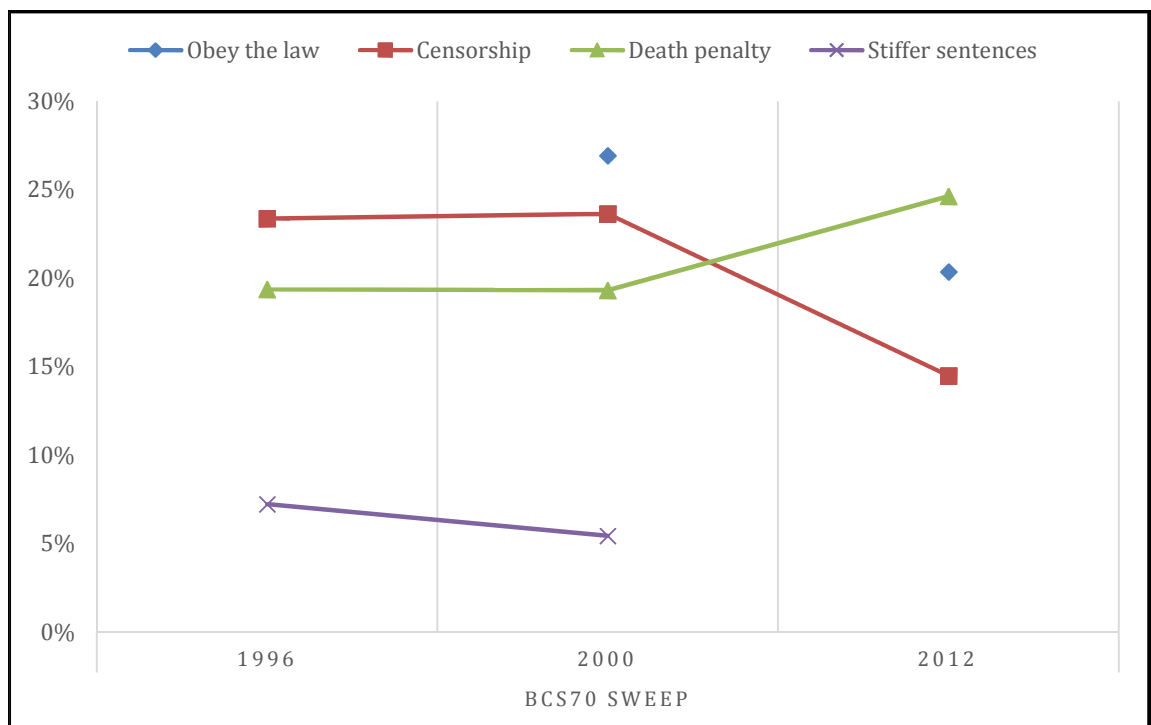
Item and sweep	Answer category (% over Valid cases)					Valid cases	Total
	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree		
Obey the Law							
1996	8	49	23	18	3	8832	9003
2000	11	39	23	24	3	11112	11261
2012	6	43	30	18	2	8605	9841
Censorship							
1996	13	49	14	18	5	8905	9003
2000	12	42	23	18	6	11106	11261
2012	19	45	21	11	4	8643	9841
Death penalty							
1996	38	31	12	9	10	8860	9003
2000	33	36	12	12	7	11107	11261
2012	27	36	12	13	12	8621	9841
Stiffer sentences							
1996	30	42	20	6	1	8901	9003
2000	32	38	24	5	1	11112	11261

Table 8 shows a reassuring item-non-response proportion across the three time points for each indicator of attitudes to authority, as compared to the total sample available at each sweep. Generally this table shows higher propensity to adhere to authoritarian stances in the aggregate for the four outcomes, with a relatively stable majority of the CMs opting for the response categories Strongly Agree and Agree, with a minimum of 49% for the item Obey the Law in 2012 to a maximum of 72% for Stiffer Sentences in 1996.

For the analyses carried out for this thesis, the items' answer categories were inversely coded with Strongly Agree equal to 0, Agree equal to 1, up to Strongly Disagree as equal to 4, so that the individual score on each item is higher when moving towards liberalism.

As a first inspection of the patterns of change across the three sweeps for the measures of CMs' attitudes to authority items, Figure 3.2 presents the percentage values for the response categories Strongly Disagree and Disagree, which indicate more liberal stances towards each item/indicator.

Figure 3.2 % Strongly Disagree and Disagree by Outcome over time. BCS70 1996, 2000, 2012



For the three indicators Obey the Law, Censorship, and Stiffer Sentences a tendency towards lower levels of liberalism over time can be noted, although in the aggregate for the item Obey the Law a surge towards higher liberalism in 2000 as compared to the other two sweeps is particularly evident. The item Death Penalty is the only one for which increasing liberal stances are observable, especially in the year 2012 after almost equal levels in the previous two sweeps of data. With this first graphical inspection, I could conclude that at the aggregate level the sample of CMs seemed to move from the age of 26 to the age of 42 towards more liberal stances regarding opinions on Death Penalty, whilst going towards more authoritarian stances regarding opinions on adherence to the law, censorship, and stiffening sentences.

3.2.2 Parents' authoritarian attitudes

There are 43 5-point Likert-scale-type items (with answer categories Strongly Agree, Mildly Agree, Cannot Say, Mildly Disagree, Strongly Disagree) used to measure parents' opinion towards a range of topics, and related to different dimensions of socio-political attitudes for the CMs' parents in 1975 (Butler, Dowling, & Osborn, n.d.; Osborn, Butler, & Morris, 1984). All these items were used to identify sub-dimensions of socio-political

attitudes amongst the parents (Golding, n.d., p. 35), and via a principal component analysis (PCA) (Hotelling, 1933; Jolliffe, 2002). The scales' scores available for each CMs' parents were labelled as attitudes towards 1) Maternal Employment; 2) Gender Equality; 3) Better Life for Women; 4) Television; 5) Hospital visiting; 6) Authoritarian Worldview; 7) Child-rearing and Child Independence. There were two relevant dimensions to the studies presented here, that is, Authoritarian Worldview and Authoritarian Child-rearing.

As shown in Table 9, the attitude items in the parents' self-completion questionnaire in 1975 were answered by mothers in around 75% of the cases, by both parents in 24% of the valid questionnaire and by fathers only in 1% of the valid cases. A cumulative percentage of 99.9% of the completed attitude questionnaires were hence filled in by one or both natural parents of the CMs. In this work I do not take into account the different respondents of the parents' self-completion questionnaire, as only a really small proportion of fathers answered the questions, and as the contrast between the answer given by both parents versus those given only by mothers was not considered relevant to the objectives of this work.

Table 9 Who answered the parents' attitude items in the Parents' self-completion questionnaire? BCS70, Sweep 1 in 1975

Who answered the attitudes questions	Frequency	%	Cumulative %
Mother only	9,750	74.96	74.96
Father only	92	0.71	75.67
Both parents	3,152	24.23	99.9
Other person	13	0.1	100
Valid cases	13,007	100	

Therefore, the totality of the valid parents' self-completion was used for the analysis carried out in this work.

Figure 3.3 presents the list of items defining the two key measures available for the parents' level of authoritarianism in 1975, i.e. the items for, respectively, parents' Authoritarian Child-rearing and Authoritarian Worldview.

Figure 3.3 Original items for the two scales measuring parents' Authoritarian Child-rearing and Authoritarian Worldview. BCS70, Sweep 1, year 1975. Parents' self-completion questionnaire

Scale: Authoritarian Child-rearing

1. Such activities as painting and playing should take second place to teaching reading and arithmetic in infant schools.
2. Increases in vandalism and delinquency are largely due to the fact that children nowadays lack strict discipline.
3. Children should not be allowed to talk at the meal table.
4. Children under five should always accept what their parents say as being true.
5. One of the things parents should do is sort out their children's quarrels for them and decide who is right and wrong.
6. Unquestioning obedience is not a good thing in a young child.
7. A mother who always gives in to her child's demands for attention will spoil him.
8. If pre-school children would pay more attention to what they are told instead of just having their own ideas they would learn more quickly.
9. A child should not be allowed to talk back to his parents.
10. There are many things a 5-year-old child must do with no explanation from his parents.
11. It is not surprising if educational standards are falling when children have so much freedom in school nowadays.
12. You cannot expect a child under five to understand what another person feels.
13. A well-brought-up child is one who does not have to be told twice to do something.

Scale: Authoritarian Worldview

1. A person who does not let others stand in his way is to be admired.
2. Some equality in marriage is a good thing but by and large the husband ought to have the main say-so in family matters.
3. Nothing is worse than a person who does not feel a big love, gratitude and respect for his parents.
4. People should be satisfied with their lot in this world and not struggle to get more.
5. Parents must face the fact that teenagers have different morals from their own when they were that age and must put up with it.

The procedure through which the two scales were derived, as based on the items listed in Figure 3.3, for the data set deposited in the UK Data Service archive are based on PCA: precisely, a first exploratory PCA was run on all the available items, under the assumption of a unidimensional construct. Afterwards, each of the principal components/dimensions

individuated by this first step was scored separately from the others (Institute of Child Health).

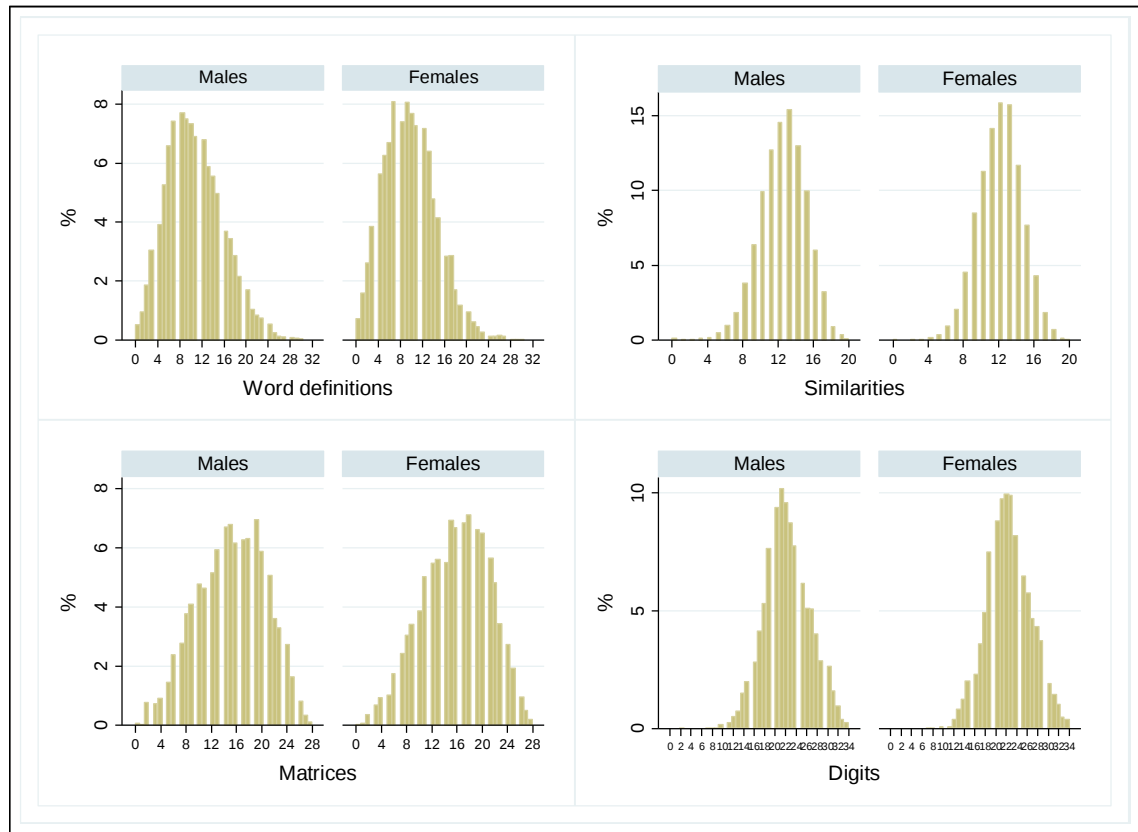
The analysis that I offer in the present work reconsidered the results reported above regarding the two attitude scales in Figure 3.3, by means of the application of theory-testing, confirmatory models from the latent variable or IRT framework, as explained in the sections that follow.

3.2.3 CMs' cognitive ability in 1980

A key variable for this thesis, collected in the BCS70 when the CMs were aged 10, is represented by the Cognitive Attainment Scale (Elliot et al., 1978), often also referred to as the British Ability Scale (*Ibid.*; (Deary et al., 2008). Four sub-tests administered to the CMs at school by teachers constitute the scale, and these are Word Definition, Word Similarities, Matrices and Recall of Digits (Butler et al., N.A.(a)). The technical documentation available for this study reports that all the tests were piloted before being administered to the final respondents, giving estimates of internal consistency reliability coefficients (Butler et al., N.A.(a)). The total measure is divided into two main sub-dimensions, each one of which is composed of two further dimensions: A) Non-verbal ability, made of two subscales A.1) a 3-point scale made of 28 items for the first dimension measuring the ability to deal with missing parts of an incomplete pattern (Matrices), and A.2) a 3-point scale with 34 items measuring the ability to recall digits (Digits); B) Verbal ability, made of two subscales B.1) a 3-point scale made of 37 items and measuring the child's ability to define the 37 words (Definitions), and B.2) a 3-point scale made of 42 items measuring the child's ability to find words consistent with the words enunciated in each of the 42 groups of words (Similarities). Previous studies have used either a uni-dimensional measure of general ability, which was obtained through principal component analysis (Schoon, 2010), or as a second-order construct, defined as *g* and made of the four sub-dimensions Matrices, Digits, Definitions and Similarities, as described above (Deary et al., 2008b). The four sub-dimensions were also used as separate predictors of the Edinburg Reading Test and of the Friendly Maths Test, and found able to explain a large portion of the variance of both tests (Butler, Despotidou, & Shepherd, n.d.); moreover, the dimensions Matrices, Similarities and Definitions were found to be relevant contributors in a further uni-dimensional measure of cognitive ability which included reading, maths, spelling, and pictorial language comprehension tests (Parsons, 2014).

The distribution of each BAS sub-scale is presented in Figure 3.4 by gender of the CMs.

Figure 3.4 Distribution of British Ability Scales' test scores by CMs' gender. BCS70 Sweep 1980



As Figure 3.4 shows, there are no particularly visible differences between the distributions of the four test scores between male and female CMs.

The scale obtained from the combination of the four sub-scales, either via PCA or more robust statistical methods such as confirmatory factor analysis (CFA) (Lohelin, 1987; Moustaki, 2007; B. O. Muthén, 1984), is the general cognitive ability *g* variable used by Schoon *et al.* (2010) and Deary *et al.* (2008b) as predictor of liberal social attitudes in adulthood, as well by Sturgis (2010) to predict generalised trust.

3.2.4 Selected time points

The first sweep of the BSC70, was carried out in 1970 and is known as Sweep 0; I have not taken data from this sweep into account, as it does not contain information on parents' social attitudes.

In order to answer the research questions related to the assessment of attitude change in adulthood, data from the BCS70 sweeps in the years 1996, 2000 and 2012 were used, as in these sweeps I have information on both the attitudes to authority items as well as on the CMs' socio-economic characteristics, and on the covariates measuring interest in politics and religiosity, i.e. all the socio-economic characteristics presented in Table 6. In Sweep 6 in 2004, when the CMs were aged 34, the questions on views and social attitudes were asked in a different format compared to previous and subsequent sweeps, i.e. the possibility of answers were binary (*Yes* versus *No* and *Not sure*) instead of the 5-point Likert-type items. Obviously this represents a fairly large loss of information if compared with the much more detailed format of a 5-point Likert scale; moreover, a further degree of indeterminacy for the categories of answer offered is given by the aggregation of the *No* and *Not Sure* modalities (from the original questionnaire, thus impossible to discern). Therefore, this sweep's information on socio-political attitude would lack fruitful comparisons with the previous and following sweeps, hence it was not used in this work. The total number of cases available for analysis in Study 1 is made of 10,676 valid cases.

For Study 2, in order to assess the mechanism of intergenerational transmission of attitudes to authority from parents to their offspring in adulthood, I used Sweep 1 in 1975, where information on parents' authoritarian attitudes measured through two main scales: attitudes to Authoritarian Child-rearing and Authoritarian Worldviews are available, as well as on their socio-economic characteristics. By including data from Sweep 1, Study 2 is based on a total of 14,956 cases for which information on at least one of the variables of interest is available. The parents' socio-economic characteristics taken into account from sweep in 1975 are those presented in Table 7.

Finally, in Study 3 I added information on the CMs' cognitive ability measure available in the BCS70 sweep in the year 1980, at age 10, to the sweeps in the years 1975, 1996, 2000 and 2012; hence the final data set is made of 13,133 cases.

3.3 Methods

3.3.1 General overview of methods

I chose the very broad analytical framework proposed by Muthen and colleagues (B. O. Muthén, 1983, 1984, 2002; Skrandal & Rabe-Hesketh, 2004; M. Wilson, 2005) for all

analyses used in this thesis. Called Generalized Latent Variable Modelling (GLVMs), it incorporates as special cases the following model types:

A) Structural Equation Models and Generalized Structural Equation Models; the former for continuous endogenous variables and the later more recent development for ordinal endogenous variables.

B) Item Response Theory Measurement Modelling, implemented in this framework as Generalised Latent Variable Modelling. This approach uses in effect Confirmatory Factor Analysis models for ordinal factor indicators, allowing for the modelling of latent variables in the Generalized Structural Equation Modelling framework mentioned above.

C) Generalized Latent Growth Curve Models. These models represent variation in growth over time as continuous latent variables, allowing for the modelling of correlated, time-ordered observations in the Generalised Structure Equation Modelling framework described above. Ordinal endogenous observed variables are modelled using the same measurement framework as mentioned in the models above.

Study 1 primarily deals with evaluating the measurement of attitudes over time and therefore primarily relies upon model types drawn from B) and C) above.

Studies 2 and 3 primarily deal with hypothetically causal pathways among several different constructs, some latent, and therefore draws mainly on models of type A) and B), in a multi-wave SEM framework.

In Study 2, to observe the effect of parents' social attitudes on those of cohort members in adulthood—the process of intergenerational transmission of attitudes—I will proceed from the results obtained in Study 1, by adding information on parents' SES and attitudes. In Study 2 I also applied latent variable models for categorical data (B. O. Muthén, 1983) in order to assess the psychometric properties of the scale used to measure parents' authoritarianism.

In Study 3, finally, the measure of CMs' cognitive ability is taken into account in the theorised mechanism of intergenerational transmission by using the four sub-dimensions of Word Definitions, Similarities, Digits and Matrices as indicators of the CMs' general intelligence.

The aim of SEMs is the integration between regression models, path analysis and measurement models, the latter able to represent a theoretical latent construct assumed to be free from measurement error, in order to represent hypothetically causal relations in a multivariate setting (Bollen, 1989; Jöreskog, 1973).

Before going on to outline these model types in detail, the approach to model estimation and evaluation is first presented.

3.3.2 Model estimation and selection

The software package Mplus v7 was used to fit the models presented here. I estimated them using a Weighted Least Squares (WLS) algorithm based on polychoric correlations, suitable for the ordinal dependent variables used in my analyses. The WLS algorithm produces parameter standard errors that are robust to violations of the normality and constant variance assumptions underpinning polychoric correlations. Similarly, the overall model fit Chi-square statistic is a Satorra-Bentler scaled Chi-square, similarly robust to departures from normality (B. O. Muthén, du Toit, & Spisic, 1997; L. K. Muthén & Muthén, 1998).

The WLS (B. O. Muthén et al., 1997) also drastically reduced the time taken to estimate some of the more complex and computationally intensive models used in this thesis. For models with ordinal outcomes and large numbers of latent variables (which was particularly the case in the three studies presented here), the Maximum Likelihood or even Monte Carlo estimators that would have had to be used in a Hierarchical Modelling framework were found to take literally days of computer time to estimate using brute force numerical integration (Skron dal & Rabe-Hesketh, 2004).

One potential limitation of the WLS estimator is in its treatment of missing data. The WLS estimator is a ‘limited-information’ estimator, which computes model parameters based upon only uni- and bivariate relationships among the dependent variables, and not the higher order relationships that are also modelled by Maximum Likelihood estimators. This is the main reason that this WLS estimator is computationally feasible for the complex models fitted in this thesis. However, it does have drawbacks in the assumptions that can be made about missing data. The WLS estimator can use information from exogenous predictor variables to render missingness in the dependent variables as Missing At Random

(MAR; Little & Rubin, 1989), i.e. with missingness not related to the exogenous variables. But the WLS estimator cannot use the information contained in the full, multivariate distribution of the set of dependent variables in the model, and therefore cannot use this information to justify the outcome data as MAR. This presented a potential problem for our analysis, because, for example, it is known that attrition in the BCS70 cohort data is related to variables used as outcomes in my analyses, such as cohort members' social class and educational attainment (Mostafa & Wiggins, 2015). To ameliorate for this, I used the procedure recommended by Asparouhov & Muthén (2010) for supporting the MAR assumption by using all of the variables in a model estimated by WLS. This procedure is to use Multiple Imputation (MI) of missing values to supplement estimation by the WLS estimator (Asparouhov & Muthén, 2010; R. J. A. Little & Rubin, 1989). This is described in more detail in the empirical study chapters later in the thesis.

An advantage of the WLS approach over ML is that the adequacy of the models' global fit to the data could be assessed using model fit indices suggested by Hu and Bentler (1999): the Comparative fit index (CFI) and Tucker-Lewis index (TLI) were used with a cut off value of at least 0.95 taken to indicate close fit; the Root-Mean-Square Error of Approximation (RMSEA) was used with a threshold value of 0.06. Local model fit using measures of R-square was assessed as well.

The following sections specify the general form of the three model types.

3.3.3 Model framework: Part 1 - Measurement models

The measurement models used in this thesis are motivated by a general lack of adequate measurement modelling of latent constructs in the socio-political attitude literature, and emerge from the work in psychometrics and educational testing (Alwin et al., 2010; Cronbach, 1990; Messick, 1989; Pampaka et al., 2012).

It is argued in this section that there is a need nowadays for a systematic account on uses of the concept of socio-political attitudes in survey research; this includes an account of the history of its main applications, as well as guidelines on future practices of measurement and analysis. As Heath and Martin (1997) have pointed out, social and political research faces a lackadaisical connection between, on the one hand, the questions used in survey research as measures of complex concepts such as socio-political attitudes, and hypotheses,

operationalisation and theoretical framework that should drive the construction of standardised measuring instruments, on the other.

As De Menezes and Bartholomew (1996) highlighted, attitude scales have not received the same level of attention in terms of testing and refinement as other scales or tests in educational and medical settings have. For these authors, the interest on more refined methods to analyse attitude items lies in the possibility to explore unobserved, latent variation between individual scores, rather than simply raw percentages and cross-tabulations. Clearly, as we have seen above, I make the strong assumption that differences in unobserved variation of the attitude items can be best described in terms of a continuous latent space able to capture different facets of a complex social phenomenon or construct (Bollen, 2002; Borsboom, Mellenbergh, & van Heerden, 2003; Messick, 1989).

Related to assessing psychometric features of the attitude scales is the elaboration of measurement models (Bartholomew & Knott, 1999; Borsboom, 2008) to be used for further longitudinal analyses. In particular I take into account the intrinsically ordered nature of the kind of items used in the literature for the measurement of social attitudes, that is, mostly Likert-type scales. Therefore I use models and estimation procedures for polytomous items (Ostini & Nering, 2010), as offered within the Item Response Theory (IRT) models approach and further elaborated within the Generalised Latent Variable Models (GLVMs) framework (B. O. Muthén, 1983; Skrondal & Rabe-Hesketh, 2007; M. Wilson, 2005). This would represent a breakthrough compared to the usual type of quantitative analyses of attitude items in survey research, which is based on factor analysis for continuous indicators (FA) and it is mostly defined within the so-called classic test theory (CTT) in psychology (Worthington & Whittaker, 2006); the latter approach assumes continuous and normally distributed indicators, whilst the proposed IRT approach does not. IRT models take into account further parameters involved in the relationship between the observed responses and the latent continuous factor(s).

The main aim of integrating regression models and measurement models in a unified framework is to account for biases derived from measurement errors in the specification of the former. Structural equation models (SEMs) aim to do this—that is, through this method I am able to remove measurement error from error-prone predictors in a regression-type model (Shryane, Chandola, & Bentley, 2013).

If I do not specify a disturbance, I should theoretically justify why, as the omission of it means that I assume that there is not any unmeasured variable (or factor) that may possibly affect the modelled relation. This is, obviously, a very strong theoretical assumption. In line with this, if I specify a disturbance, I assume that there are unmeasured causes; however, I can partly compensate for this issue with the introduction of measurement models able to correct for potential measurement error in those predictors in which disturbances are specified: in this way, omitted causes and measurement error are differentiated and measurement error is excluded from the estimation of the full structural model (Brown, 2006).

The integration between CTT and IRT has already been widely elaborated upon by the literature specialised on latent variable models; this has been done mostly by comparing categorical-item variations of the CFA for continuous outcomes with one-parameter (e.g. the Logistic, Rasch and Polytomous Rasch) and two-parameter (e.g. the Logistic, Normal Ogive and Graded Response) IRT models (Bock, Moustaki, Rao, & Sinharay, 2007; B. O. Muthén, 1983; Nering & Ostini, 2010; Skrondal & Rabe-Hesketh, 2007). The general aim of these models is to investigate the relationship between a person's response to an item and the characteristics being measured, often defined as underlying "latent traits" (Lazarsfeld, 1959). These methods use mathematical functions of the relationship between the observed measures and the unobservable trait. Thus, these functions relate the probability of a certain answer to a respondent's attribute.

The generalised latent variable framework for a response (measurement) model as explained by Muthen (B. O. Muthén, 1983, 1984), Skrondal and Rabe-Hesketh (Skrondal & Rabe-Hesketh, 2007) and by Moustaki (2007) is defined by three components; that is, a distribution, a linear predictor and a link. The distribution is the random component characterised by the exponential family distribution assigned to each of the random response variables, such as Bernoulli, Poisson, Multinomial, Normal and Gamma (Moustaki, 2007, p. 295). Then, the linear predictor is the systematic component derived from the assumed linear relation between outcomes (indicators) and predictors (latent variables). Finally, the link function describes the mathematical function for the relation between the random and systematic components. In a measurement model, choices of combinations between the three components are supposed to be made so as to best represent the distribution of the observed (response/outcomes/indicators) variables,

assumptions on the distribution of the latent variables given the observed, and the link between observed and latent variable.

The mathematical formalisation of measurement models as illustrated above specifies Coombs' (1964) categorisation of data structures and respective methods as a function of operationalisation choices, as well as of assumptions on the information available in the data; thus, if, for example, a researcher had previously operationalised an attitude as measured by a set of indicators in a Likert-type scale format (with 5 categories of answer), then his/her choices of measurement models to be applied to test hypothesised characteristics of the attitude construct would depend on the assumptions regarding the statistical distribution of the latent variable (attitude construct), the link between latent variable and observed variables, and the statistical distribution of the observed variables.

The models that I am going to apply for this work are the 2-parameter Normal Ogive IRT model, also defined as Item Factor Analysis (IFA) (Lord, 1965). Other applicable types are the Samejima's Graded Response model (Samejima, 2010) and the Polytomous Rasch model (or Rating Scale model) (Andrich, 1978, 2010). I applied the default measurement model available in Mplus v7, the IFA, indeed, for which a probit link is specified for the indicators when regressed on the latent factor (Lord, 1965; B. O. Muthén et al., 1997; L. K. Muthén & Muthén, 1998), whereas logit links are specified for the others.

Measurement models will be developed through tests of those previously defined by other studies (Bynner et al., 2003; Cheng et al., 2011; G. A. Evans & Heath, 1995) as well as through potential revisions of the same in an exploratory-confirmatory circuit; at the cross-sectional level, item factor analysis (IFA) models with the IRT framework are applied to assess internal validity and reliability of the scales at each time point (1975, 1996, 2000, 2012) for the following scales:

- Year 1975 (Parents):

Authoritarian child rearing (13 items)

Authoritarian worldview (5 items)

- Year 1996 (CMs):

Support for law and order (4 items)

- Year 2000 (CMs):

Support for authority (4 items)

- Year 2012 (CMs):

Support for law and order/Support for authority (3 items)

Moreover, a further widely tested measurement model for childhood cognitive ability (C. D. Elliot, Murray, & Pearson, 1978; Schoon et al., 2010) is introduced in Study 3.

3.3.3.1 The GLVM framework measurement model

This section describes the algebraic formulation of the measurement models applied in this work to assess the psychometric properties of the latent constructs listed at the end of section 3.3.3. In the unidimensional case the common factor model equivalent to a 2-parameter normal ogive IRT model can be written as follows:

$$y^*_{ij} = \beta + \lambda_i \eta_j + \varepsilon_{ij}, \quad \text{Equation 2}$$

where

$$\eta_j \sim N(0, \psi), \quad \varepsilon_{ij} \sim N(0, 1), \quad \text{cov}(\eta_j, \varepsilon_{ij}) = 0, \quad \lambda_1 = 1.$$

In Equation 2 y^*_{ij} is a continuous but unobserved, i.e. latent, response variable for individual i and item j , β is an intercept parameter, λ_i is factor loading for item i , η_j is the common latent factor value for each individual, and ε_{ij} is the error term including random measurement error. The error term is assumed to follow a standard normal distribution, whilst the distribution of the latent factor is normal with zero mean and variance ψ . Finally the covariance between the latent measures and the error term is assumed to be zero. As y^*_{ij} is unobserved, its value is related to the observed polytomous ordinal response variable y_{ij} via threshold parameters τ ,

$$y_{ij} = c, \quad \text{if} \quad \tau_c < y^*_{ij} \leq \tau_{c+1}, \quad \text{Equation 3}$$

for categories $c = 1, 2, \dots, C-1$ of the polytomous variable. To identify all of the $C-1$ threshold parameters the intercept parameter β in Equation 2 is set to zero (Agresti, 1990; B. O. Muthén, 2004).

The latent factor / IRT models described above are used in all of the empirical studies reported in this thesis.

3.3.4 Model framework: Part 2 - Expansion of the Measurement Model into the General Structural Equation Model framework

The measurement model detailed above is expanded into a SEM framework by including the direct effects of exogenous predictors:

$$y_j^* = \beta + \lambda\eta_j + kx_j + \varepsilon_j, \quad \text{Equation 4}$$

where (dropping subscript i for clarity) k is the regression parameter for the direct effect of exogenous covariate x on the outcome y^* . Further, the latent variables η can be modelled as functions of further exogenous variables x and also other latent variables η , thus:

$$\eta_j = B\eta_j + \gamma x_i + \zeta_i, \quad \text{Equation 5}$$

where B relates the effect of additional latent variables η , γ relates the effect of covariates x predicting the latent variable, and ζ is a disturbance (B. O. Muthén, 2002). The endogenous variables can be specified as being correlated by the inclusion of off-diagonal elements in their covariance matrices, as specified in Equation 2.

This model formulation is used in studies 2 and 3 to specify the SEM models predicting cohort members' attitudes in adulthood using their own characteristics in adulthood and childhood, as well as their parents' characteristics when the cohort members were children.

3.3.5 Model framework: Part 3 - Longitudinal analysis in SEM

In Study 1 a particular form of generalised latent variable model was used, the Latent Growth Curve Model (LGCM). The sections below will illustrate the main technical features of the methods applied for this work.

In a longitudinal-analysis framework I aimed to observe whether and how socio-political attitudes are transmitted from parents to their progeny. In order to assess this mechanism I first carried out an analysis of whether attitudes to authority change over time in adulthood, and as explained above, I refer to three time points over the CMs' life course, i.e., from when they were 26, to 30 until to the latest available sweep of data in 2012 when they are aged 42.

The aim of this study is to examine the development of socio-political attitudes over time within a single birth cohort. A cohort is defined as the common start of an experience amongst the observed units (Plewis, 1985), which differentiates these units from those belonging to other cohorts. Cohort data are deemed by Lynn (2009) as apt to analyse change in the key outcomes as a function of age—that is, the substantive topics are mainly age-specific. This type of data allows for the assessment of change at the individual level, in particular for the inspection and explanation of inter-individual differences in intra-individual change (Singer & Willett, 2003). Indeed, the birth cohort data available in the BCS70 belong to the so-called repeated measure, or hierarchically structured data, where the occasions of measurement (level 1 units), or data points, are clustered within individuals (level 2 units); moreover this type of data structure is also defined as a strong hierarchy, as the variation is higher between level 2 units than within them (Goldstein, 1987).

Moreover, regarding potential determinants and covariates of attitudes to authority, I will be focusing both on family and individual socio-economic status as well as demographic characteristics over time. It has to be specified that I am not postulating a 2-level structure, rather that the family of origin's characteristics (socio-political attitudes and SES) are prior factors in the definition of their progeny's same characteristics, in a multivariate perspective (B. O. Muthén, 1984).

The relation between socio-political attitudes and socio-demographic covariates are observed both cross-sectionally (among parents, then among their offspring) as well as diagonally (how parents' socio-demographic characteristics affect their offspring's socio-political attitudes in adulthood), in order to assess the association between prior socio-demographic characteristics and later attitudes, and longitudinally.

In Study 1 I conducted a longitudinal analysis regarding development and change of the latent construct of attitudes to authority as measured by the four indicators Obey the Law, Censorship, Death Penalty and Stiffer Sentences. This also means to either check for or to assume measurement invariance (Meredith & Teresi, 2006; Widaman, Ferrer, & Conger, 2010), and in this case strong measurement invariance across the three time points in 1996, 2000, and 2012 was assumed. By pooling the cross-sectional data sets containing cohort members' socio-political attitude scales (Sweeps 4, 5, and 8) into a whole longitudinal data file, the aim is to apply multivariate models of change of the latent constructs over time. The baseline for the analysis of change in Study 1 are the measures of CMs' attitudes to authority in 1996 (t_0), and individual-level differences over time will be estimated across the 2000 (t_1), and 2012 (t_2) sweeps. A latent growth curve model (LGCM) using Structural Equation Models (SEM) (Bollen & Curran, 2006) is proposed. One of the assumptions of using LGCM with SEM is that the measures have to be the same over time.

3.3.5.1 Latent growth trajectory models

Study 1 aims to assess patterns of change/stability in attitudes to authority in adulthood, in my case amongst the population represented by those born in Britain in 1970 by underscoring the mean trend over time, as well as by taking into account the significance of the intra-individual level variations around this mean, in order to assess whether attitudes to authority meaningfully change at the individual level in my population of reference, across the three time points under analysis.

First, the latent dimensionality of attitudes to authority across the three time points for which the indicators are available in the BCS70 data set is assessed; two types of latent structure were considered—that is, a unidimensional single trait predicting the four outcomes, as opposed to the hypothesis that each item reflects a specific facet of attitude to authority, although correlated.

Secondly, inter-individual differences in the rate of change across the three time points were assessed through unconditional latent growth curve models; as only three time points are available, I could only assume a linear trajectory of change (Bollen & Curran, 2006; L. K. Muthén & Muthén, 1998).

The final step of the analysis is the introduction of predictors of change, which included the key socio-demographic characteristics highlighted by the literature and presented in Table 6. The models applied in Study 1 were run on the imputed data set for Study 1, made of 10,676 cases with complete information on all the variables. The imputation model was specified by the inclusion of both the outcomes and the covariates used for the final conditional LGCM, i.e. the covariates reported in Table 6.

3.3.5.1 Single-item parallel growth curve models and autoregressive structure

The linear probit growth model for a single indicator over time is written as

$$(y_{*ti}) = \eta_{0i} + \eta_{1i}x_t + \varepsilon_{ti}; \quad \text{Equation 6}$$

where with three time points $x_t = 0, 1$, and η_{0i} represents the initial status, or intercept growth factor, and η_{1i} as the rate of change over time, or slope growth factor, the latter implying across-time differences in the individual values of y_{*ti} . Threshold invariance is assumed over time, whilst the mean of the slope is free to be estimated, and the mean of the intercept is free with one threshold fixed at the various time points. In the models applied in this work I used the Theta parameterisation, where the residual variances are fixed at unity for the first time point only, while being freely estimated for the remaining time points (B. O. Muthén & Asparouhov, 2002).

In addition to considering the single-item growth model approach, I also applied a simplex autoregressive structure to the single-item LGCM in the fashion of an autoregressive latent trajectory model (ALT) (Bollen & Zimmer, 2010) in order to better explain the trajectory, in particular for the item Death Penalty, which, as also shown in Figure 3.2, presented a different aggregate-level trajectory as compared to the other three items Obey the Law, Censorship and Stiffer Sentences; namely, the item Death Penalty is the only one for which a clear increment towards more liberal stances is observed at the aggregate level in the

BCS70 sample. The combination of LGCM and an AR structure incorporates the time-specific effect from one occasion of measurement to the next typical of the autoregressive models in the powerful account of individual-specific random components underlying the LGCM structure (Bollen & Zimmer, 2010).

3.3.5.2 Multiple-indicator latent growth curve models

The multiple-indicator LGCM model was applied to assess change in attitudes to authority from the age of 26 to the age of 42, across the three time points in 1996, 2000 and 2012. This method combines covariance structure analysis and individual growth modelling, as described in Muthén (1983), Meredith and Tisak (1984), and Bollen and Curran (Bollen & Curran, 2006); the assumption is that for a given set of response variables—or indicators—a set of latent factors, fewer in number than the original variables, can be found as able to represent the combined information available from each indicator.

Hence, the response variables for sweeps in 1996 and 2000 are the four indicators of attitudes to authority, i.e., Obey the law, Censorship, Death penalty and Stiffer sentences, whilst only the first three items are available for the 2012 sweep of data. At each time point the four indicators were assumed to be measuring the latent construct of attitudes to authority, denoted as η_t , with $t = 1996, 2000$, and 2012 . The measurement structure of the items is the one reported in Equation 2, and since the same items were administered across the three time points, a time-invariant structure is postulated over time. As reported by Muthén (2004), in a linear LGCM with categorical outcomes in a SEM perspective, a single-level analysis, rather than a multi-level type, is performed, so that the vector of measurement occasions is considered as a multivariate outcome (B. O. Muthén, 2004; L. K. Muthén & Muthén, 1998).

The case of modelling the latent growth of a unidimensional factor η_f measured by multiple indicators is written as follows, starting from the measurement model for indicator j :

$$y_{jti}^* = v_{jt} + \lambda_{jt}\eta_{fti} + \varepsilon_{jti} , \quad \text{Equation 7}$$

where v_{jt} is typically equal to 0 as the location parameters are identified by the thresholds. For further specifications of the default measurement model for categorical outcomes applied in Mplus, see Muthén & Asparouhov (2002). For the structural part of the growth model under analysis here, the equation is as follows:

$$\eta_{fti} = \eta_{0i} + \eta_{1i}x_t + \zeta_{ti} \quad \text{Equation 8}$$

where with three time points $x_t = 0, 1$, and η_{0i} represents the initial status, or intercept growth factor, and η_{1i} as the rate of change over time, or slope growth factor. The error term ζ_{ti} in Equation 8 identifies time-specific factor residual variances $V(\zeta_t)$ together with indicator- and time-specific residual variances $V(\varepsilon_{jt})$ (B. O. Muthén & Asparouhov, 2002).

3.3.6 Approach to missing data: Multiple Imputation

Considering the missing data issue in the BCS70 as reported in section 0, in the following analytical chapters of this work Multiple Imputation (MI) was applied, as suggested by many for the type of data set used here (Pampaka et al., 2016; Rubin, 1976), and for the specific data set. In the BCS70 Mostafa & Wiggins (2015) found that: 1) their self-computed non-response weights did not improve the precision of the estimates, as per the low predictive power of the models used to construct the weights, as well as because non-response weights are useful only to adjust for bias in one sweep; and that 2) MI increases the number of complete units across relevant sweeps and reduces the standard errors of the estimates when the variables correlated with unit and item non-response are used in the imputation model. In each of the three analytical chapters that follow, the results obtained through MI are then compared with results obtained on complete-case analyses, in terms of significance and direction of the estimated models' coefficients. All the multivariate statistical models presented in this thesis were run in Mplus v7.2 (L. K. Muthén & Muthén, 1998), which offers simple and advantageous MI procedures (Asparouhov & Muthén, 2010), as briefly described in section 3.3.6.1.

3.3.6.1 General definition of Multiple Imputation and application in Mplus v7.2

The main reason to impute missing data is to keep statistical power and reduce bias due to missingness for inference (Pampaka et al., 2016). Multiple imputation is a particular imputation method that incorporates estimates of the random variation across results obtained from a number of imputed data sets, in an iterative process described by Rubin (Rubin, 1987) as follows:

- 1) Imputation of missing values based on selected variables hypothesised to be related to the missing data mechanism, i.e. based on a specified imputation model. Plausible values for the missing data are created based on a Bayesian estimation method and a Markov-Chain-Monte-Carlo (MCMC) simulation (Nielsen, 2003; Schafer & Graham, 2002). In Mplus, 100 MCMC iterations are run and the missing data is imputed after the MCMC process converges for each one of the required imputed data sets (Asparouhov & Muthén, 2010). In this work, the number of imputed data sets was set to ten, so that the imputation process is repeated ten times, but each imputed data set is independently drawn from the missing data posterior.
- 2) Analysis of the imputed data sets with same methods available for complete-cases analysis.
- 3) Average of results from each imputed data set. It is in this step that the random variation in the estimates, due to the imputation model applied to the different imputed data sets, is integrated in the modelling results, in two main steps: 3.1) a single-point estimate is derived by the average of the parameter estimates across the M-imputed data sets; 3.2) calculation of the standard errors of the estimates is done by averaging the squared standard errors of the M estimates, followed by the computation of the variance of the M parameter estimates across the M-imputed data sets, to finally combine standard errors and variances via an adjustment term, usually equal to $1+1/M$ (Pampaka et al., 2016).

Considering that the models proposed in this work were fitted by a limited-information Weighted Least Squares (WLS) estimator, as implemented in the Mplus software (L.K. Muthén & B. O. Muthén, 1998), only information from exogenous predictor variables render missingness in the dependent variables as MAR. To tackle this problem, as for

instance cohort members' social class, one of the predictors of attrition found by Mostafa & Wiggins (2015), features as an endogenous, dependent variable in our model, we used the procedure recommended by Asparouhov & Muthen (2010) for supporting the MAR assumption using all of the variables in a model estimated by WLS, which is to combine WLS with Multiple Imputation (MI) (Enders & Bandalos, 2001). The analysis in Mplus (L. K. Muthén & Muthén, 1998) was set to the estimation of 10 imputed data sets, using a Markov-Chain-Monte Carlo (MCMC) (John J McArdle, Grimm, Hamagami, Bowles, & Meredith, 2009) algorithm based on Gibbs sampling, with 100 iterations. The imputation model contained all of the variables in the analysis model.

Sensitivity analysis was performed by estimating the same models using available complete cases only (with listwise deletion), which meant making the stronger assumption of data Missing Completely At Random (MCAR). Results from the two sets of analyses are compared, but because of their weaker assumptions and smaller standard errors, in the main text of the three Studies I report the results from the MI models only.

Each imputation model applied will be explained in detail in the dedicated section below. It has to be underscored that the dependent variables were also included in the imputation model (Graham, 2009).

3.4 Overview of research questions, studies, and related methods

Table 10 summarises the methods I applied in order to answer my research questions.

Table 10 Synopsis of research questions and related proposed methods

Research question (RQ)		Methods
Study 1		
RQ1	Can attitudes to authority be defined as a unidimensional, coherent construct across time?	Psychometric analysis. Application of a measurement model to test unidimensional attitude constructs: 2-parameter Normal Ogive IRT model. Confirmatory settings for previously defined models as presented in works based on BCS70 data. Exploratory settings for alternative solutions, then confirmatory settings for final models. Comparison of results.
RQ2	Do attitudes towards authority change over time in a life course perspective?	Longitudinal analysis. Unconditional latent growth curve models (LGCM) for each dimension/factor identified
RQ3	How are socio-economic characteristics (gender, occupation, education, religion and interest in politics) related to attitudes towards authority over time?	Longitudinal analysis. Conditional latent growth curve models (LGCM) with covariates as predictors of each dimension/factor identified
Study 2		
RQ4	Can a mechanism of intergenerational transmission of socio-political attitudes be identified?	Multi-wave SEM
Study 3		
RQ5	Do parents' attitudes to child obedience predict their children's attitudes to authority in adulthood, after controlling for socio-demographic characteristics of parents and their offspring, as well as for the offspring's cognitive ability in childhood?	Multi-wave SEM

4 Study 1: Attitudes to authority from 1996 to 2012: inter-individual differences and intra-individual stability

4.1 Abstract

This paper considers whether and how attitudes towards authority change over time in the British adult population. I apply latent trajectory and autoregressive models to the 1996, 2000 and 2012 sweeps of the British Cohort Study of 1970; after controlling for gender, education, occupational social class, interest in politics and religion, I found that: 1) from the age of 26 to the age of 42, the cohort becomes more liberal regarding obedience to the law, the death penalty and stiffer sentencing, but more authoritarian regarding censorship; 2) individual-level characteristics are associated to inter-individual differences over time, in particular: 2.a) as occupational social class and level of education increase, attitudes tend to be more liberal; 2.b) interest in politics is positively associated with less authoritarian attitudes; 2.c) those who define themselves as non-religious tend to be more liberal; 2.d) the effect of gender varies by attitude: females are more authoritarian towards censorship, but more liberal regarding capital punishment and stiffer sentencing.

4.2 Introduction

In his summary of the literature on socio-political attitudes, Duckitt (2001) observed that these are usually organised around two “relatively orthogonal dimensions” (Ibid, p. 46): the first is interchangeably labelled as authoritarianism, social conservatism and traditionalism; the second counterposes economic conservatism and belief in hierarchical power on the one hand, and egalitarianism, humanitarianism and social welfare on the other hand. The specific interest of this paper is on a particular aspect of the continuum authoritarianism/liberalism, i.e. on attitudes to authority.

Scholars such as Billig (1984) and Jost, Banaji & Nosek (2004) have viewed socio-political attitudes as associated with people’s general ideological position. For instance, according to Jost et al. (2004), people’s self-positioning on the widely used Right-Left continuum has been found to be a strong predictor of voting behaviours in the American National Election Study from 1972 to 2004. In the context of the United States’ party system, 'Right-Left' is represented by the dimension 'Conservative-Liberal' and Jost,

Federico & Nappier (2009) have argued that conservatives experience the need for social order and social conformity—attributes strongly associated with authoritarian attitudes. On the other hand, liberals tend to favour change of the (conservative) status quo, so that the difference between liberals and conservatives centres on the issues of hierarchy, authority and inequality. Other authors (Sidanius & Pratto, 1999; Ho et al., 2012) have also hypothesised that authoritarian and social dominance attitudes affect inter-group attitudes, i.e. one's disposition towards members of the out-groups, which, in turn has been found to affect preference for radical right-wing populist parties (Berning & Schlueter, 2016). Adorno (1950), Rokeach (1968), Wilson (1973), and the same Jost' works (2006), amongst others.

A key question is whether such socio-political attitudes and ideological positions are subject to intra-individual change or are fixed over the life course. This question is raised by the dissonant findings between research based on cross-sectional aggregate analysis (for example, M. Phillips & Simpson, 2014) on one side, which largely agree on findings stating intergenerational change by population replacement, and research based on panel data (Dinas, 2013; Jennings & Stoker, 2006; Stoker & Jennings, 2008) on the other hand, which have tried to integrate mechanism of change over the life course and generational replacement. In this paper I discuss how attitudes towards authority, which are seen as a key component of the social conservatism-liberalism scale (Altemeyer, 1996; Duckitt & Sibley, 2010) are defined and measured, whether they change over time within individuals and how they relate to demographic and socio-economic characteristics. The research questions are: 1) do attitudes towards authority change over time in a life course perspective and, if so, to what extent and how? 2) How are socio-economic characteristics (gender, occupation, education, religion and interest in politics) related to attitudes towards authority over time?

4.3 Attitudes toward authority: definition

Max Weber (1954) formalised a tri-partite definition of authority, with the following three ideal-types: charismatic authority, traditional authority and legal-rational authority. In this work I am interested in exploring people's attitudes towards the Weberian legal-rational authority where legitimacy is seen as coming from norms, order and jurisdictional controls. Spencer (1970) analysed Weber's typology in light of the concept of attitudes towards legitimacy and argued that there are two types of legitimacy: 1) affectual legitimacy, for

which “norms and authority are tinged with awe and reverence”, and 2) reasoned legitimacy, for which “norms and authority are accepted because of their rational relation to basic values” (Ibid, p. 133). In turn, Spencer also posited that reasoned legitimacy can be of formal or substantive rationality; under formal rationality, legality is the basic value-orientation and authority is accepted because it is formally defined as such, whereas the legality value for substantive rationality is second to its congruence with extra- values. Hence, the dichotomy of substantive and formal rationality appears to offer a powerful theoretical device for the analysis of attitudes towards authority, as the latter identifies those individuals who unconditionally stick to the rules because those are the rules, whereas the former refers to those individuals who follow the rules conditional upon their congruence with extra- values and the trade-off that derives from the negotiation process.

Since Adorno et al.'s (1950) measurement of the authoritarian personality through the Fascism scale (F-scale), there have been numerous attempts to capture the concept of attitudes to authority, many of which are bound up with broader concepts like social conformity and resistance to change. Wilson and Patterson's (1968) Conservatism scale (C-scale) aimed to measure favourable attitudes to 50 items pertaining to the two core aspects of conservative ideology—namely, resistance to social change and maintaining inequality, as well as to the peripheral aspects of it, i.e. to those malleable and historically changing associations (Jost et al., 2003). Altemeyer's (1981) Right-wing Authoritarianism (RWA) scale primarily concerns the measurement of resistance to change, in terms of commitment to tradition, to authority and opposition to political protest and rebellion. Altemeyer's definition of RWA identifies three main dimensions: a) submission to the authorities, which are seen as unchangeable and legitimate, b) aggressiveness, and c) adherence to social conventions endorsed by society. Schwartz's (1992) proposed theory consists of ten basic values ordered along the two orthogonal continua: Self-enhancement/Self-transcendence and Openness to Change/Conservatism; as Duckitt et al (2013) underscored, Schwartz's higher order value labelled as Conservation mirrors the three dimensions of authoritarian attitudes as conceptualised by Altemeyer.

Drawing on the above approaches, and particularly on Duckitt's work, here I accept the definition of authoritarian attitudes as “support or opposition for the subordination of individual freedom and autonomy to the collective and its authority” (Ibid, p. 843); in particular, I refer here more precisely to the concept of attitudes to authority, and define

these as positive or negative evaluations of the controls and sanctions applied by the state on its citizens. Therefore, I conceptualise attitudes to authority as a continuum representing levels of agreement on issues concerning the relationship between social control as exerted by the system and individual self-expression.

4.3.1 Attitudes towards authority: change over time and covariates

Attitudes towards the death penalty, severity of punishment for criminals, and police funding are viewed as measures of issue-based conservatism and related mostly to the peripheral aspects of authoritarian attitudes (Jost et al., 2003). These peripheral aspects are “likely to vary considerably in their ideological relevance across time” (Ibid.: 342), depending on interactions between societal and individual level circumstances, which then define their relevance compared to other socio-political issues of the time.

Significant associations of attitudes to authority with individual-level characteristics have been found in previous studies. Social class is a key correlate of authoritarianism and conservatism in the literature (Napier & Jost, 2008; Paterson, 2008). Congruent with Duckitt’s (2001) review of the psychological literature, Lipset (1960) found that the more disadvantaged social classes tend to be more liberal on issues concerning the welfare state and income taxation, whilst more conservative and authoritarian on topics such as immigration legislation and ethnic minorities. In the process of validation of Lipset’s hypothesis, de Regt et al (2012), using a modified version of Altemeyer’s RWA scale in the European Value Survey (EVS) 2008 across 30 countries, showed that individuals belonging to the working class are more authoritarian, even after allowing for cross-country differences in socio-political contexts and social-development pathways at the aggregate level. Jost et al. (2004) also point to socio-economic class differences in RWA, political and economic conservatism, with low-socio-economic-success individuals scoring higher.

At the individual level, other correlates of authoritarianism in the literature are: educational level, often seen as a key moderator of the relationship between attitudes and social class, with lower education associated with higher conformism and authoritarianism (Lipset, 1960; de Regt et al., 2012; Schoon et al., 2010; Zakrisson & Ekehammar, 1998), and life-long learning associated with attitude change towards more

liberal stances (Bynner et al., 2003; Preston & Feinstein, 2004); gender, with most studies underscoring either higher authoritarianism for males or no gender effect (Poortman & Van Tilburg, 2005; Pratto et al., 1997; Whitley & Aegisdottir, 2000); high socio-political participation and low cynicism which are associated to more liberal stances on moral issues (Singh & Dunn 2015; Bynner & Ashford 1994); and age, with attitudes tending towards more conservative and authoritarian positions as age increases (Danigelis et al., 2007). Finally, the relationship between religion and socio-political attitudes in general sees a fertile terrain for research, as many studies around the world are trying to trace how one influences the other (L. R. Jacobs & Shapiro, 2011; Putnam & Campbell, 2010), as well as to account for the impact of socialization processes on both (Pearce & Thornton, 2007; Voas & Crockett, 2005).

4.4 The British context and the population of reference

The current paper uses the British Cohort Study 1970 (BCS70), a major longitudinal study in Britain. Results from that study indicate that less than half of the 1970 British cohort members stayed in education after the age of 16; those who did take their chances in the labour market faced the possibility of joining the increasing large numbers of the unemployed youth, or taking part in the Government's Manpower Services Commission's training schemes. Beck (1986) argues that global shifts driven by technological change affected the perception of uncertainty and risk amongst the population during this period, as they have required young adults to find their ways independently of traditionally set employment routes based on class, gender, ethnicity and place, so that "for a generation born in the 1970s the routes to adulthood were becoming more *individualised*" (Bynner et al. 1997, p.2). In face of the more dispersive and competitive labour market, those who did not have and did not manage to secure the necessary level of human and social capital found themselves at the margins of society. Together with global technological developments, British society went through a cultural and political shift centred on reforms of the welfare state. After the victory of the Conservative Party in 1979 and for the next eighteen years of Conservative government, the UK's welfare systems were subjected to market-driven privatisation processes, which led to the worsening of welfare conditions for those with insufficient means to provide for themselves. This social context reflected new processes of the structuration of individual identity and politics, which were also increasingly shaped by the spread of the individualist consumerism promoted by the mass

media. Famously in 1987, the then UK Prime Minister Margaret Thatcher said: “There is no such thing as society. There are individual men and women, and there are families”¹, which seemed to capture the individualist *Zeitgeist*. Similarly, mechanisms of formation of political attitudes traditionally based on party allegiances passed on from parents to children were said to have been replaced during this period by transient issue-based politics, the influence of peers and increasing cynicism towards the political institutions, with the consequent weakening of socio-economic background cleavages in the definition of political identity (Banks et al., 1992). This shift reflects the fragmentation of party-line-based politics, in favour of a ‘new politics’ defined by grassroots movements such as feminism, environmentalism and more general human rights activism, which called for a new way of looking into the increasing diversity of political participation (Marsh 1979).

In general, as compared to the results obtained in the previous British cohort study—the National Child Development Study 1958 (NCDS)—the 1970 cohort represents a more polarised generation (Bynner et al., 1997; Plewis et al., 2004; Wiggins, Bynner, & Parsons, 1997). Moreover, results from the 1996 sweep of the BCS70 suggest that this cohort showed larger support for gender equality than the 1958 cohort; but less liberal opinions than the 1958 cohort on law and order issues, the death penalty and censorship. Therefore, the scope of the present work is limited to examining how attitudes towards authority have evolved over time for the 1970 birth cohort in Britain, as well as how gender, educational qualification, occupational social class, religious beliefs and interest in politics relate to these same attitudes over time for this cohort.

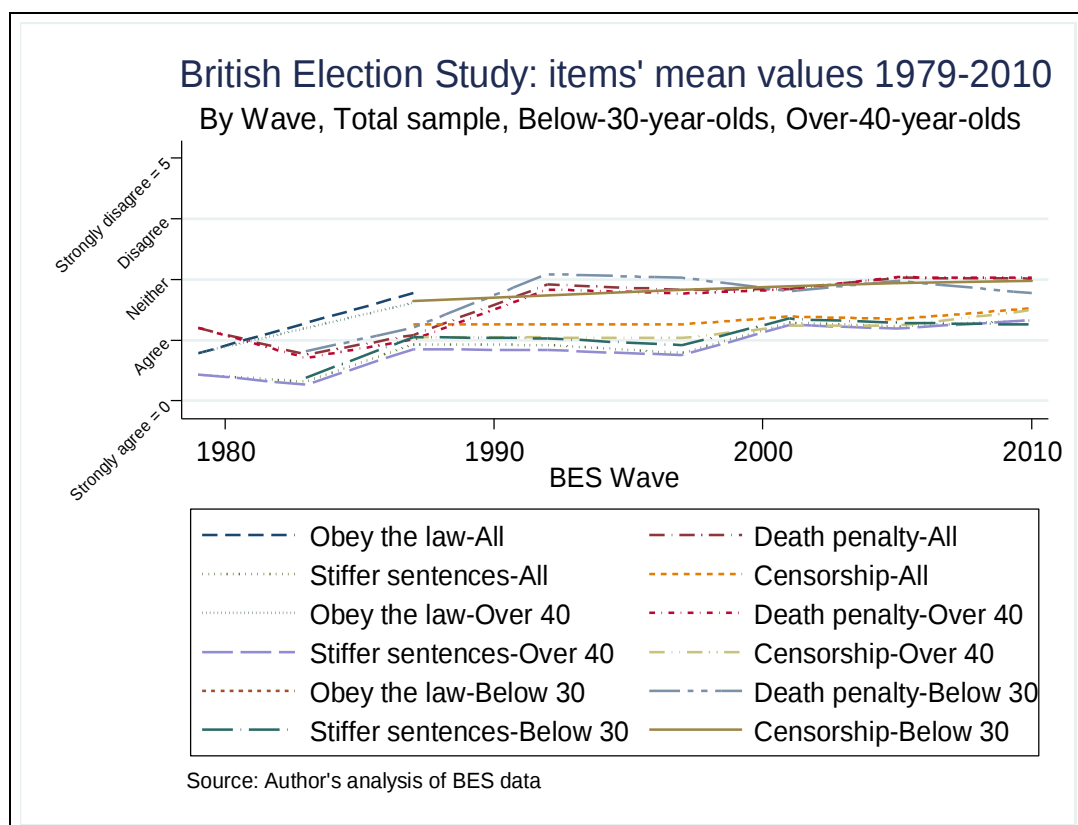
In this study, the use of a panel single-cohort study will enhance the analysis of individual-level change in attitudes toward authority, rather than simply its aggregates. As opposed to my analytical perspective, the widely-used aggregate, repeated cross-sections approach is suitable to only enquire into change over time for population groups (Lynn, 2009); as an example, Figure 1 shows a time-series analysis performed on the repeated cross-sectional data from the British Election Study (BES) from 1979 to 2010, for four indicators of

¹ Interview of Margaret Thatcher by Douglas Keay, *Woman's Own*, 31 October 1987, pp. 8–10.

authoritarianism-liberalism (G. Evans et al., 1996), namely, opinions towards adherence to the law, censorship, the need for stiffer sentences and capital punishment.

Figure 4.1 shows that for the population groups represented there is an aggregate-level tendency towards slightly more liberal opinions on the four items as a function of the time period 1979-2010, and that differences based on age, i.e. whether below 30 or over 40, tend to converge from 1997 onwards. However, with this type of data I am not able to describe the *process of change* (Singer & Willett, 2003), i.e. to estimate change at the individual level: to observe whether and how, over the same period, an individual's attitudes change and how this relates to his/her socio-economic characteristics. The analysis presented here aims to fill this gap.

Figure 4.1 Mean values' trends for four items measuring attitudes to authority, British Election Study, 1979-2010. Trends for Total sample, Below-30-year-old group, and Over-42-year-old group. Higher values = more liberal



4.5 Methodology

4.5.1 Data

I used data from the 1970 British Cohort Study (BCS70) (see Plewis et al. 2004 for thorough description) to evaluate intra-individual development in attitudes towards authority. The BCS70 is a longitudinal birth cohort study that follows all babies born in Great Britain in a single week in 1970 throughout their lifetime.

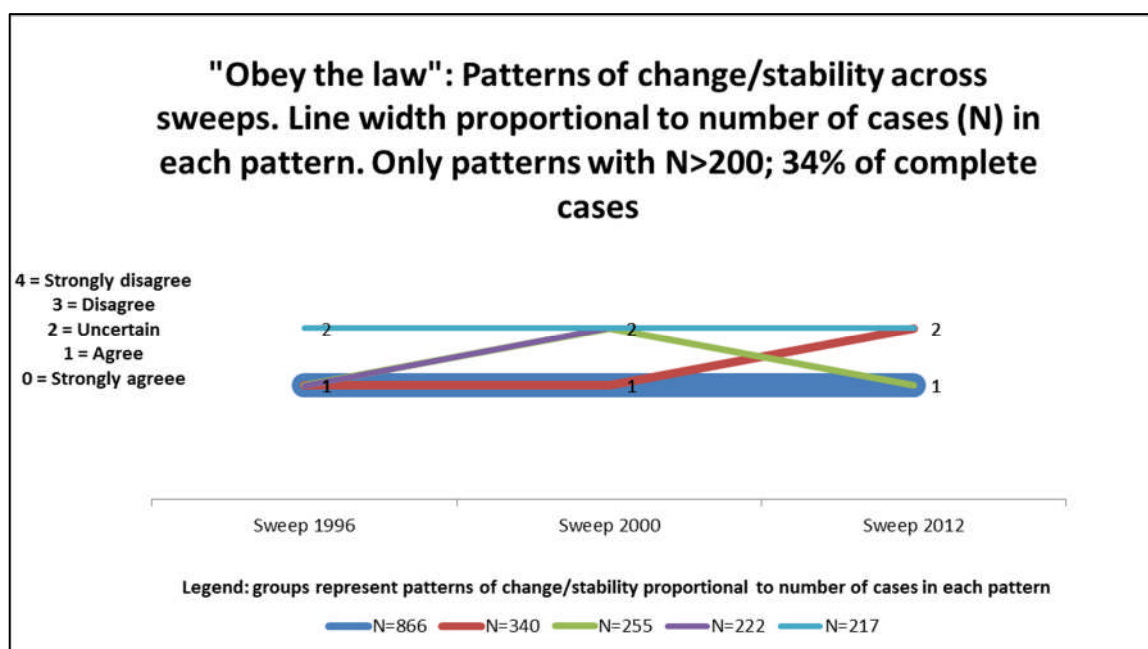
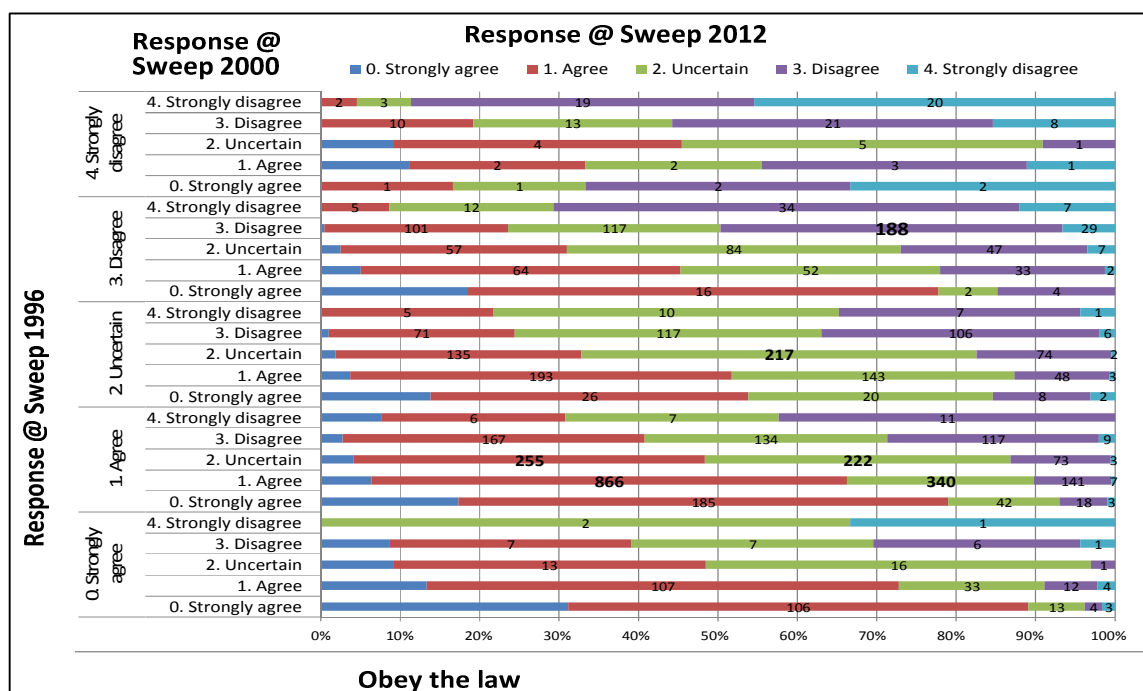
4.5.2 Measures

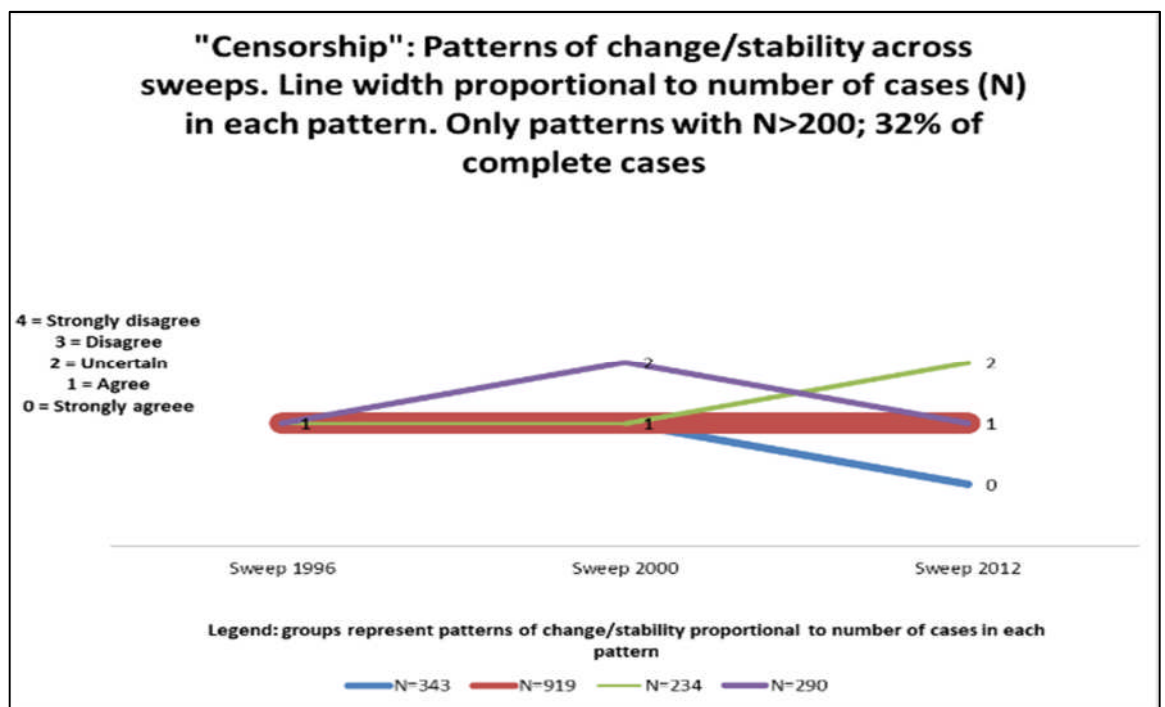
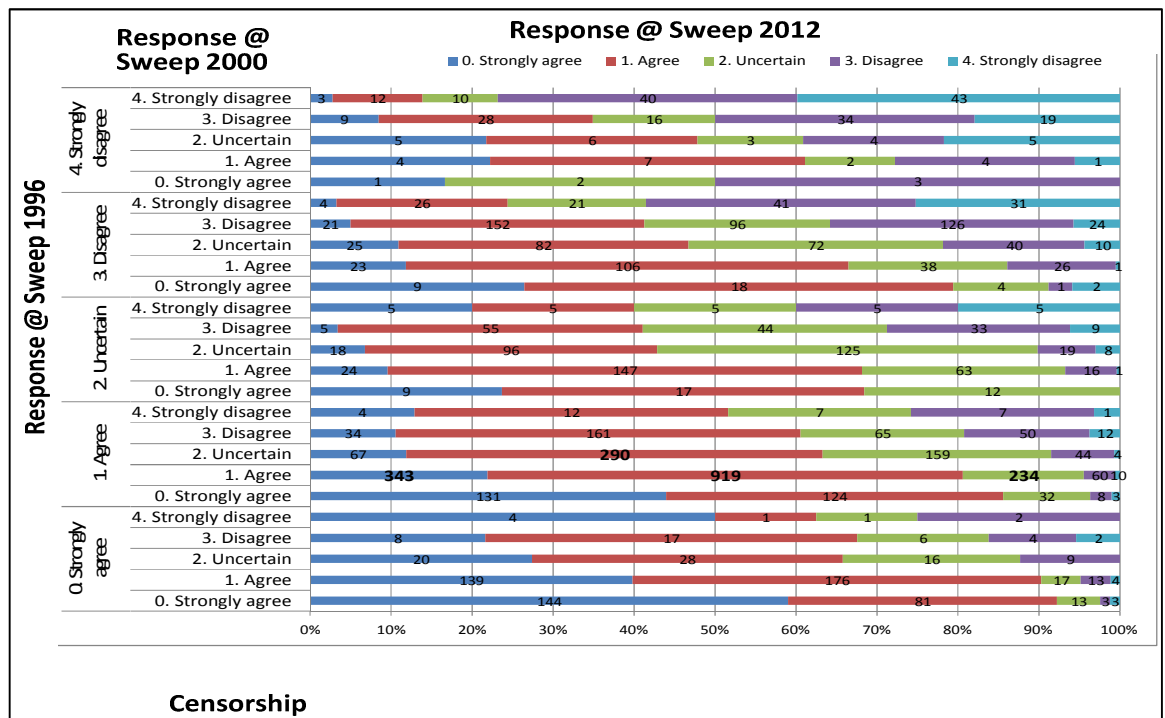
Cohort members were asked to respond to four questions related to attitudes to authority in more than one sweep of the BCS70. These questions were asked in 1996 (N = 9,003), 2000 (N = 11,261) and 2012 (N = 9,842), when the cohort members were 26, 30 and 42 years of age. The attitudes to authority items' wording repeated in all the three BCS70 sweeps is as follows: The law should be obeyed, even if a particular law is wrong (Obey the Law); Censorship of film and magazines is necessary to uphold moral standards (Censorship); For some crimes the death penalty is the most appropriate sentence (Death Penalty). A fourth and interesting item was asked only in sweeps 1996 and 2000: People who break the law should be given stiffer sentences (Stiffer Sentences). These items are the same as those measured over time in the BES and reported in Figure 1. In the BCS70 the items were measured on 5-point Likert scales, and were recoded from 0 (Strongly Agree) to 4 (Strongly Disagree), so that higher values represent more liberal opinions.

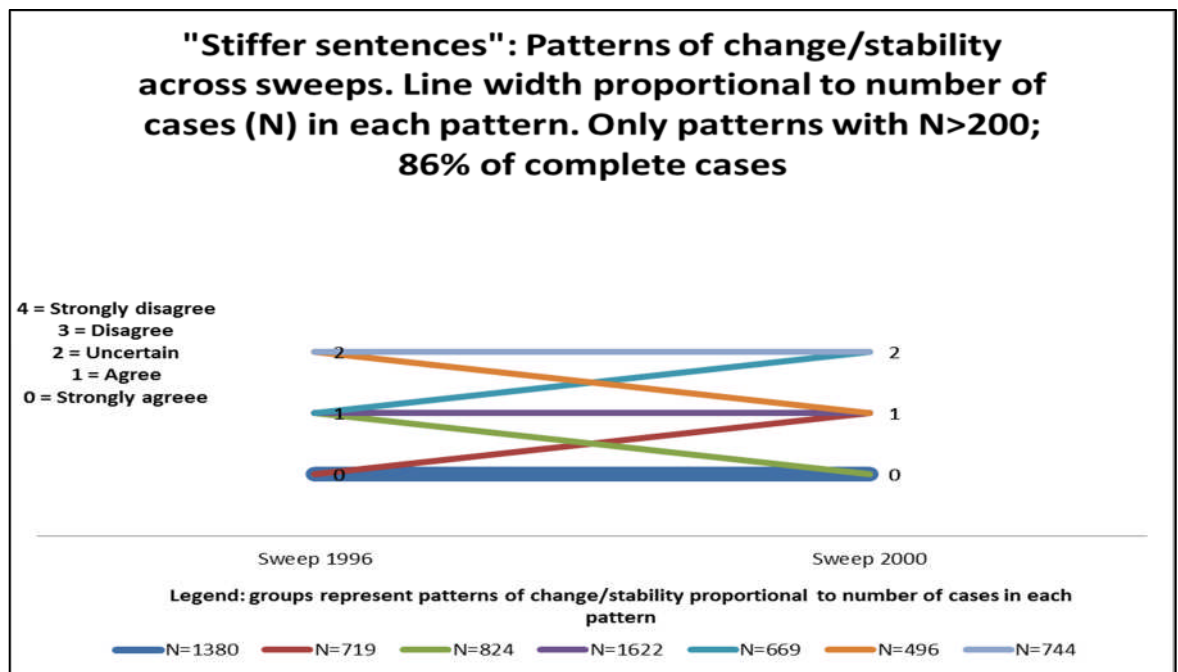
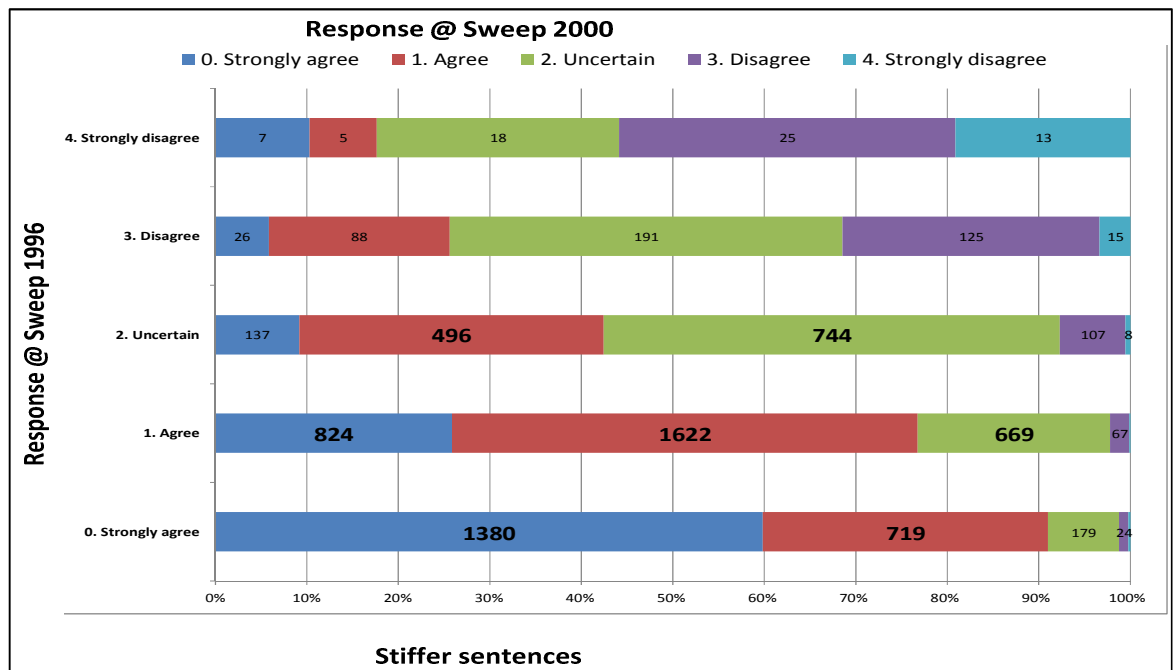
In order to show relevant patterns of change in the BCS70 cohort, Figure 4.2 reports for each item under analysis: 1) a horizontal-bar plot which represents percentages and absolute values of the answer categories over time; 2) right below each bar plot for each item are examples of the sample's trajectories for major patterns, including at least 200 cases each. For the trajectory patterns, the thickness of the lines is proportional to the number of cases in each one, with the least numerous pattern as the baseline. As underscored by Figure 4.2, at the individual level we can notice mostly stability in levels of agreement with the attitudes to authority items, where the major patterns largely represent variations around the Authoritarian/Conservative categories of answer "Strongly Agree" (=0) and "Agree" (=1), for each of the four items under analysis, across the sweeps.

As explained below, the aim of the analysis presented here is to model the patterns of change/stability in the data by underscoring the mean trend over time, as well as by taking into account the significance of the intra-individual level variations around this mean, in order to assess whether attitudes to authority meaningfully change at the individual level in my population of reference, across the three time points under analysis.

Figure 4.2 Horizontal bar plots for representing answer categories across sweeps, and line plots of major patterns of change/stability for the four items. Patterns with number of cases >200 (0=“Strongly Agree” to 4=“Strongly Disagree”). BCS70 1996-2012







Based upon the arguments and findings discussed earlier I expected that there would be systematic variation in attitudes toward authority related to: gender, education, occupational social class, religion and interest in politics (Marsh, 1990; Wiggins et al., 1997). Table 11 shows the coding and descriptive statistics for these variables.

Table 11 Descriptive statistics for covariates across the three waves

Covariate	1996	2000	2012
Gender, N	9,003	11,261	9,841
% Female	54	51	52.
% Male	46	49	48
Education, N	8,399	11,226	9,834
% Lower than NVQ2	23	22	19
% NVQ2 and above	77	78	81
Occupational Class, N	6,792	9,071	8,269
% Unskilled/Skilled Manual	33	34	31
% Non-Manual	67	66	69
Religion*, N	8,722	11,195	8,550
% Christian and other religions	37	74	50
% Non-religious	63	26	50
Interest in Politics, N	8956	11192	8676
Mean	1.18	1.08	1.29
SD	0.81	0.87	0.86

Notes: *= Item wording varied across sweeps; respectively, in 1996: “Do you belong to a religion?”; in 2000: “What is your religion?” and in 2012: “Do you now see yourself as belonging to any particular religion?”

4.6 Methods

My analyses had three goals. First, I sought to evaluate the latent dimensionality of the four items, to see if they could be regarded as indicators of a single ‘authoritarian attitudes’ construct or whether they reflected a more complicated and nuanced set of related but distinct attitudes. Second, I wanted to then model the evolution of these attitudes within individuals over time. Third, I would add covariates as predictors of these latent attitudes and their development.

4.6.1 Latent dimensionality

I used Item Response Theory (IRT) models (Moustaki, Jöreskog, & Mavridis, 2004) to identify the latent dimensionality in the data. IRT is similar to conventional factor analysis (Lohelin, 1987) in that it posits one or more continuous latent variables as unobserved causes of the observed pattern of item responses—however, it does not need to assume continuous and normally distributed observed variables as it takes into account the categorical nature of the responses. Specifically, I used two-parameter, normal ogive IRT models (Lord, 1965).

With just three of the four questionnaire items available for the three time points, I considered just two types of structure for the assumed latent “attitudes to authority” trait: a) all items reflect a single trait; b) each item reflects a separate attitude.

4.6.2 Change over time

I used latent growth curve models (LGCM) (Bollen & Curran, 2006) to model the intra-individual trajectories of attitude change as well as the between-individual differences in these trajectories. LGCMs posit latent intercept and slope growth factors as the latent causes of observed trajectories of the responses over time. Each individual is hypothesised to be located at a particular point on the latent intercept and slope distributions, which together define the initial level of his or her attitude in 1996 (intercept) and rate of change over time (slope). An individual’s position on the latent intercept and slope does not itself change over time, therefore LGCMs can be interpreted as modelling stable, trait-like influences on the level and change in attitudes. I also used an extension to the LGCM framework, whereby the level of the observed attitude at one time point can depend directly on the level of the same attitude at the previous time point. This extended model, the Autoregressive Latent Trajectory (ALT) model (Bollen & Zimmer, 2010), allows the ‘trait’ interpretation of the LGCM to include time-specific ‘state’ influences as well. As with the IRT models, no restrictive assumptions of normality are made for the observed indicators in these LGCMs and ALTs, which are assumed to have only an ordinal distribution.

4.6.3 Predictors of attitudes

The final models I fitted included the variables shown in Table 11 as predictors of the latent growth factors developed in the previous modelling step, therefore turning the unconditional LGCMs and ALTs into models conditional on the covariates.

Model estimation. All analyses were run using Mplus version 7.2 (L. K. Muthén & Muthén, 1998). Models were estimated using a Weighted Least Squares algorithm (WLSMV). In order to minimise issues of missing data when using the WLSMV estimator, I supplemented model estimation using Multiple Imputation (Asparouhov & Muthén, 2010), and assumed data ‘Missing at Random’ (R. J. A. Little & Rubin, 1989).

Model comparison and evaluation. The adequacy of the models’ global fit to the data was assessed using model fit indices as suggested by Hu and Bentler (1999). The Comparative Fit index (CFI) and Tucker-Lewis index (TLI) were used, with a cut off value of at least 0.95 taken to indicate close fit. The Root-Mean-Square Error of Approximation (RMSEA) was used with a threshold value of 0.06. I also assessed local model fit using measures of R-square.

4.7 Results

Latent dimensionality. Table 12 presents the goodness-of-fit statistics and factor loadings of the unidimensional IRT models applied for each sweep of data modelled separately.

Table 12 shows that, despite marginally adequate CFI, the other model fit indices indicate a lack of close fit between model and data. The factor loadings (Part B) highlight the importance of the variable ‘Stiffer Sentences’ in the definition of the scale of attitude to authority for the years 1996 (0.823) and 2000 (0.855); however, this variable was not measured in the year 2012, when ‘Censorship’ (0.684) played a main role, instead. For the first two sweeps of data the items ‘Death Penalty’ and ‘Stiffer Sentences’ seem to characterise a first dimension of attitudes towards authority, with higher estimated loadings, whilst the role played by the other two items is not as relevant. However, when the item ‘Stiffer Sentences’ was abandoned in 2012, both ‘Obey the Law’ and ‘Death Penalty’ contribute very feebly to the measurement of the latent construct, with values for the loadings equal to 0.235 and 0.242, respectively.

Overall, there is little evidence at the cross-sectional level to support the hypothesis of a single latent dimension of attitudes towards authority in any sweep.

Table 12 Goodness-of-fit statistics (A.), estimated standardised loadings, standard errors (S.E.) (B.) for the unidimensional scale of attitudes to authority, for the years 1996, 2000 and 2012, British Cohort Study 1970

	Sweep		
	1996	2000	2012
A. Goodness of fit			
<i>CFI</i>	0.951	0.949	- ^a
<i>TLI</i>	0.854	0.847	- ^a
<i>RMSEA</i>	0.114	0.109	- ^a
<i>(90% C.I.)</i>	(0.102-0.127)	(0.098-0.120)	
<i>Number of free parameters</i>	20	20	15
B. Factor loadings			
(S.E.)			
<i>Obey the Law</i>	0.368 (0.012)	0.365 (0.011)	0.235 (0.026)
<i>Death Penalty</i>	0.578 (0.013)	0.497 (0.012)	0.242 (0.026)
<i>Censorship</i>	0.347 (0.012)	0.330 (0.011)	0.684 (0.068)
<i>Stiffer Sentences</i>	0.823 (0.015)	0.855 (0.016)	- ^b
<i>N</i>	8,982	11,115	8,716
Notes: CFI=Comparative Fit index; TLI=Tucker-Lewis index; RMSEA=Root Mean Square Error of Approximation; C.I.=confidence interval; d.f.=degrees of freedom; S.E.=standard error; ^a = values not available as the model does not feature 'Stiffer Sentences' for the 2012 sweep (this is a 'just identified' model with no degrees of freedom); ^b =item not available for this sweep.			

Attitude change over time. Given that the cross-sectional evidence for a unidimensional measure of the latent attitude was weak, I posited a second, less restrictive model that would allow each of the attitudes captured by the four survey questions to change independently over time. In this model there were therefore no latent attitude variables, but rather four parallel latent growth processes, one for each observed attitude. To parameterize these models, measurement invariance over time was assumed, as recommended by Muthén & Muthén (1998). The model fit indices for the model of four parallel growth processes were good, as shown in Model A, Table 13 (Model B is discussed later), confirming that the process of attitude change is different for the four attitude items.

Form of change over time. The form of the change over time is captured by the latent growth factors, the estimates of which are also shown in Table 13, Model A. I first consider the latent growth intercepts (level of the attitude responses in 1996), described by two parameters, its mean and its variance: the means are fixed to zero, following a model identification constraint commonly used in these models; the latent growth intercepts' variances (level of variation around the mean) are all significantly large, showing a good deal of heterogeneity in attitudes in 1996 for all items.

Turning to the latent growth slope factors, these capture the average rate of change (mean) and heterogeneity in this rate (variance) of the attitude trajectories over time. Only three slopes were estimated because at least three measurement occasions are required to statistically identify them, and only two occasions were available for 'Stiffer Sentences'. All the latent slope means had small absolute values, implying that there was little net change in overall attitudes over time. Nevertheless, each mean slope estimate was significantly larger than its standard error, implying a non-zero net change over time. For 'Obey the Law' and 'Death Penalty' this net change was positive, implying a liberalisation of these attitudes over time, at roughly twice the rate for 'Death Penalty' compared to 'Obey the Law'. The latent slope mean for 'Censorship' was negative, implying that this attitude was on average becoming less liberal over time, at a faster rate than the rate of change of 'Death Penalty'.

Table 13 Model fit indices and estimated parameters for A) the Latent Growth Curve Model (LGCM) and B) Hybrid LGCM/Autoregressive Latent Trajectory (ALT) models.

		Model A) Latent Growth Curve Model	Model B) Hybrid Autoregressive Latent Trajectory		
CFI		0.970	0.975		
TLI		0.968	0.972		
RMSEA		0.046	0.043		
(90% C.I.)		(0.044 - 0.048)	(0.041 - 0.046)		
Item		<u>Latent Growth Curve Parameters</u>			
		Intercept	Slope	Intercept	Slope
Obey the Law	Mean	0	0.005	0	0.008
	(SE)	(- ^d)	(0.001)	(- ^d)	(0.001)
	Variance	0.634	0.002	1.729	0.006
Censorship	(SE)	(0.014)	(0.000)	(0.104)	(0.001)
	Mean	0	-0.015	0	-0.025
	(SE)	(- ^d)	(0.001)	(- ^d)	(0.002)
Death Penalty	Variance	0.650	0.001	1.853	0.003
	(SE)	(0.012)	(0.000)	(0.100)	(0.001)
	Mean	0	0.011	0	0
Stiffer Sentences	(SE)	(- ^d)	(0.001)	(- ^d)	(- ^d)
	Variance	0.689	0	12.045	0
	(SE)	(0.007)	(- ^d)	(0.757)	(- ^d)
2000 →2012	Mean	0	- ^e	0	- ^d
	(SE)	(- ^d)		(- ^d)	
	Variance	0.587	- ^d	1.398	- ^d
1996→2012	(SE)	(0.009)		(0.053)	
	Item	<u>Autoregressive parameters</u>			
	Death Penalty				
2000 →2012	Est (SE)	0.890 (0.012)			
1996→2012	Est (SE)	-0.229 (0.014)			

Notes: N=13,217; CFI=Comparative Fit index; TLI=Tucker-Lewis index; RMSEA=Root Mean Square Error of Approximation; C.I.=confidence interval; d.f.=degrees of freedom; Est.=estimate; S.E.=standard errors; ^d= model constraints.

The variance of individual trajectories around these average slope values was again much smaller than the heterogeneity around the initial levels in 1996 (i.e. the variance of the slopes was much smaller than that of the intercepts). Even so, the slope variance for ‘Obey the Law’ and ‘Censorship’ could be statistically distinguished from their standard errors. This was not the case for ‘Death Penalty’, so I fixed the slope variance for this growth factor to zero.

Effect sizes. The results suggested that the amount of change over time in attitudes was small. To judge how small, I turned to measures of local model fit at the item level. I compared the item R-squares from Model A in Table 13, which allows attitudes to change linearly over time, with a model that assumed that attitudes stay the same over time. In modelling terms, I compared the LGCM (Model I, S, Table 14) with a model that featured only intercept growth factors, not slopes (Model I, Table 14). Table 14 shows the item R-squares for the two models and their difference expressed as Proportional Reduction in Error (PRE) (Kviz, 1981). The R-squares for ‘Stiffer Sentences’ were the same in both models as neither model featured a slope parameter. The PRE for the ‘Obey the Law’ and ‘Censorship’ indicators were on average large and positive, i.e. allowing for linear change in these attitudes resulted in the model being much better in accounting for the variation in responses over time. In contrast, assuming linear change resulted in a modest worsening of fit for the ‘Death Penalty’ indicator. This suggested that change in this attitude may not have been well represented by a linear trajectory reflecting trait differences.

Table 14 Item R-squares and Proportional Reduction in Error for the preferred LGCM (Model I, S) compared to an ‘Intercepts-only’ model that assumes attitudes as fixed over time (Model I)

Item	Indicator R-square		Proportional Reduction in Error*
	<i>Intercept only (Model I)</i>	<i>Intercept and slope (Model I,S)</i>	
Obey the Law			
1996	0.51	0.63	0.24
2000	0.41	0.44	0.07
2012	0.47	0.78	0.66
Censorship			
1996	0.54	0.65	0.2
2000	0.52	0.54	0.04
2012	0.50	0.57	0.14
Death Penalty *			
1996	0.72	0.93	0.22
2000	0.73	0.92	0.21
2012	0.56	0.57	0.02
Stiffer Sentences			
1996	0.59	0.59	0.00 ^a
2000	0.62	0.62	0.00 ^a

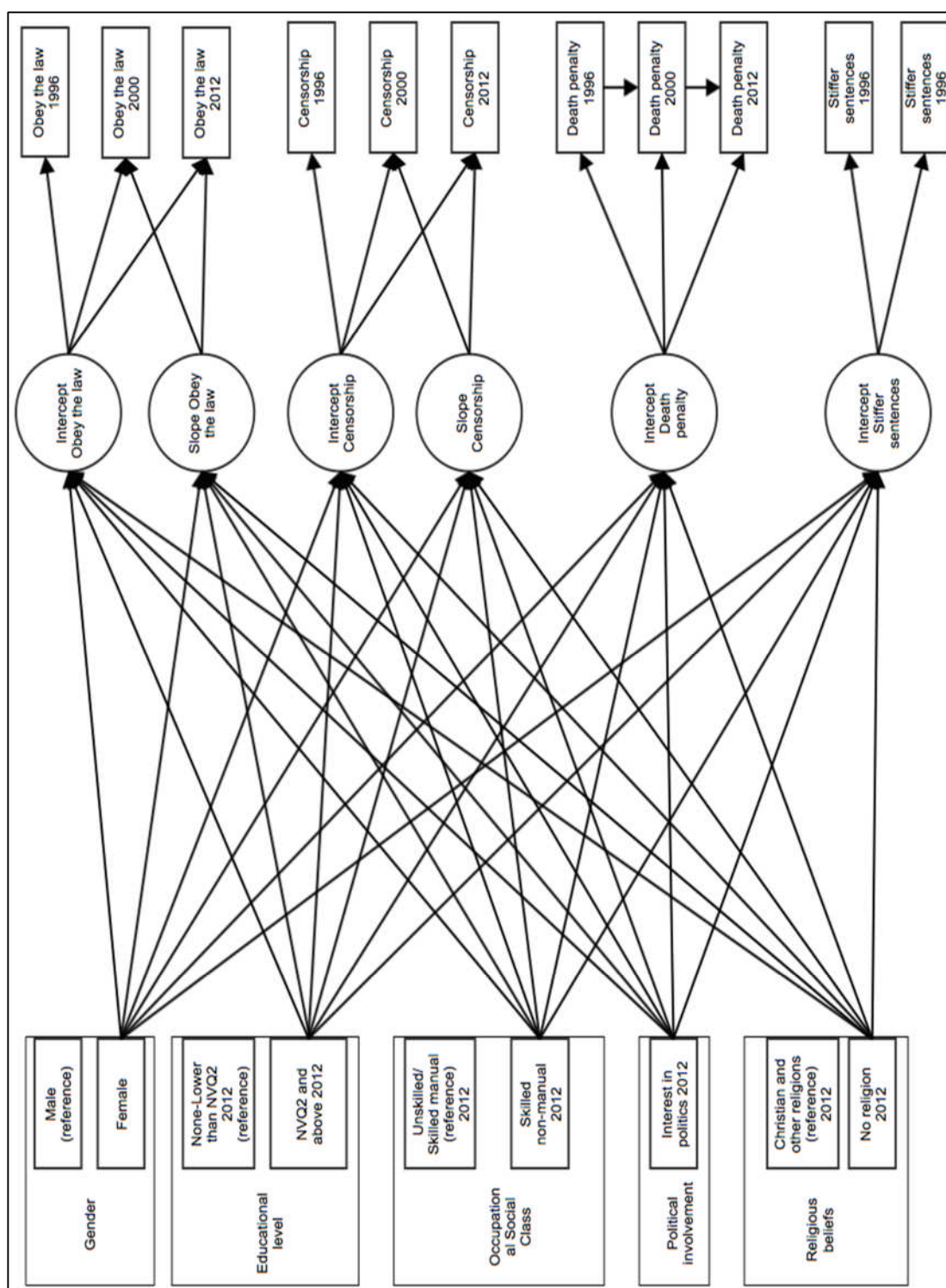
Notes: Proportional Reduction in Error is defined as $[R\text{-square}(I,S) - R\text{-square}(I)] / R\text{-square}(I,S)$; ^a = The Stiffer Sentences items had no slope parameters, therefore the two models are identical for this variable; * The R-square values presented for Model I,S refer to the results obtained with Model B in Table 13.

State-based change. The LGCM represented change over time as due to stable differences between individuals with regard to their propensity to change, i.e. trait-based differences. Despite the overall adequacy of the global model fit, the local, item-based fit statistics showed that this specification did not appear to adequately represent change in the ‘Death Penalty’ item; we, therefore, amended the LGCM to allow for a different driver of change in this item: State-Dependence. I added a simple autoregressive structure for this item, whereby the item response for each time point was regressed on the response from the previous time.

This resulted in a Autoregressive Latent Trajectory model (Bollen & Zimmer, 2010), based on probit regression.

Model B in Table 13 shows the results for this hybrid LGCM/ALT. In terms of global model fit, the hybrid ALT model was marginally better than the previous LGCM. There was though a big improvement in the R-squares for the 'Death Penalty' item, increasing to 0.93, 0.91 and 0.92 across the three sweeps (the R-square values for the other items remain the same as this model has not made any changes to their specifications). Comparing the latent growth parameters across Model A and Model B in Table 13, the variances of all the growth factors have increased, as well as the mean slopes; this indicates that Model B reports larger inter-individual differences both for the initial levels of the attitude items, as well as for their rate of change. Moreover, it shows higher values of the rate of change towards increasing liberal attitude for 'Obey the Law' and 'Death Penalty', and decreasing liberal attitude for 'Censorship'. Hence, due to the better fit of Model B to my data and the larger R-square values for 'Death Penalty', I retained this for further analyses with covariates. The LGCM/ALT results have two main implications: first, although the amount of change is on average small, change does occur and it is clearly important to model it; second, the type of change appears to be different across the items, with trait-based linear change occurring for attitudes relating to social conformity ('Obey the Law' and 'Censorship') and state-dependent change occurring for attitudes towards 'Death Penalty'.

Figure 4.3 Theoretical conditional latent growth curve model for the attitudes to authority items from 1996 to 2012, the British Cohort Study 1970



Note: Intercept and slope growth factors are correlated with each other and across items; the curved arrows representing such correlations have been excluded from Figure 4.3 to avoid clutter.

Predictors of change. For my final LGCM/ALT model I introduced predictors of the latent growth factors. These comprised dummy variables for: gender (male as the reference category), educational level (no education/NVQ-equivalent level 1 as the reference), occupational social class (unskilled/skilled-manual as the reference) and religion (Christian/Other religions as the reference). The final predictor was a continuous measure of interest in politics (mean-centred). Where these measures were available for more than one sweep, i.e. where the predictor itself was time-varying, I elected to use the latest measure available, which was from 2012².

Figure 4.3 shows a path diagram of the final model. Circles denote the latent growth factors, boxes the observed variables—predictors on the left and latent variable indicators on the right. The covariates predict both the mean level (latent intercepts) and, for ‘Obey the Law’ and ‘Censorship’ the rate of change over time (latent slopes).

The model was estimated via Multiple Imputation (MI) of 10 imputed data sets, using a Markov-Chain-Monte Carlo (MCMC) algorithm with 100 iterations, based on Gibbs sampling, and the final number of cases equals 10676. The model was a good fit to the data (RMSEA = 0.031, CFI = 0.986, and TLI = 0.980).

Table 15 shows the regressions of the latent growth factors on covariates. Panel A) shows the conditional means of the latent growth factors, and the proportions of variance in these growth factors accounted for by the predictors. Compared to the unconditional LGCM/ALT model in the previous section (Table 13), the rate of change in latent attitudes towards Obey the Law and Censorship were slightly more extreme (i.e. further from zero) in this model. As this is a conditional model, i.e. the latent growth factors are regressed upon covariates, this is interpreted to mean that the individuals with the baseline categories for the predictors (i.e. religious males in low-skilled occupations with few qualifications and an average level of interest in politics) tended to become even more liberal with regard to obeying the law but even more conservative with regard to censorship over time, compared to the whole sample.

² I also ran models using values from 2000 and 1996, with the same substantive findings.

Table 15 Conditional estimates for the latent growth factors (Panel A), and for the regression slopes of the growth factors on observed predictor variables (Panel B)

	Obey the Law		Censorship		Death Penalty	Stiffer Sentences
	I	S	I	S	I	I
Panel A						
Mean (unst.)	0.000 ^a	0.010	0.000 ^a	-0.031	0.000 ^a	0.000 ^a
(S. E.)		0.004		0.005		
R-square	0.061	0.016	0.170	0.042	0.131	0.078
Panel B)						
Predictors	<i>St. Est</i>	<i>St. Est</i>	<i>St. Est</i>	<i>St. Est</i>	<i>St. Est</i>	<i>St. Est</i>
Female	-0.025	-0.017	-0.306	0.163	0.110	-0.054
(S. E.)	0.037	0.003	0.046	0.003	0.079	0.033
NVQ 2 and						
Above	0.006	0.017	0.025	-0.055	0.096	0.038
(S. E.)	0.058	0.004	0.061	0.004	0.091	0.044
Non-manual						
Occupation	-0.074	0.037	0.063	0.018	0.131	0.049
(S. E.)	0.050	0.004	0.045	0.003	0.097	0.050
Interest in						
Politics	0.145	-0.078	0.122	-0.071	0.273	0.224
(S. E.)	0.028	0.002	0.025	0.002	0.055	0.021
Non-religious	0.189	-0.096	0.178	0.000	0.024	0.106
(S. E.)	0.050	0.003	0.053	0.004	0.072	0.037

Note. N = 10,676. Bold = significant at $p < 0.05$; ^a = parameter fixed to zero to identify the model; I=intercept; S=slope; St. Est.=standardised estimate; S. E.= standard errors for *non-standardised coefficients*. Rows A): ‘Mean’ is conditional on the predictors; ‘R-square’ is the variance in the growth factor accounted for by the predictors. Rows B): Baseline categories for covariates were Male, NVQ1 and below, Manual or Unskilled Occupation and Religious.

Looking at the R-square values in Table 15 we can see that the covariates' predictive power was generally much larger for the intercept growth factors, varying from 7.8% for Stiffer Sentences to 17% for Censorship, compared to the slope factors, where R-square was 1.6% for Obey the Law and 4.2% for Censorship³.

The coefficients in Panel B of Table 15 show that the most consistent predictor of attitudes was Interest in Politics, which was positively related with more liberal views in the first sweep (i.e. positive coefficients for the latent intercepts), but also with a trend towards becoming more conservative over time (i.e. negative coefficients for the latent slopes) regarding the two items for which the latent slopes could be computed: Obey the Law and Censorship. Being non-religious had a similar pattern of effects, associated with more liberal attitudes in 1996, but related to increasing conservatism over time, significantly only for Obey the Law.

Non-manual occupation was associated with more conservative attitudes to 'Obey the Law' but more liberal attitudes towards the other items, with no significant effects on trends over time. Greater education was associated significantly with more liberal attitudes towards the Death Penalty and Stiffer Sentences, but was also related to a move towards conservatism of views towards Censorship over time. Females had more conservative views on Censorship and Stiffer Sentences in 1996 and more liberal views on the Death Penalty, but female's views became more liberal over time compared to males on Censorship.

Not shown in Table 15 are the autoregressive parameters for the conditional model, i.e. the regression of the observed Death Penalty items on one another. These parameters were weaker—though still significant—in this model with covariates compared to the previous unconditional model: for 2012 on 2000 it was 0.388, down from 0.890 in the unconditional model, and for 2000 on 1996 it was -0.086, up from -0.229 in the unconditional model (see Table 5 for the unconditional model's autoregressive coefficients for Death Penalty). These

³ The predictors were not used for the slope of Death Penalty, which had its variance fixed to zero (as per the previous model) and so had no variance to be predicted.

differences implied that these covariates were indeed associated with changes in views about the Death Penalty, as described here.

4.8 Discussion

This study aimed to look at attitude change, specifically attitudes towards authority over time from an individual-level, single-cohort perspective, in order to assess whether the hypotheses and findings available from research based on cross-sectional aggregate data are confirmed at the micro-level of analysis.

The four items Obey the Law, Censorship, Stiffer Sentences and Death Penalty were used here to represent the dimension of authoritarianism discussed by Duckitt (2001; 2010). However, my analysis has shown little support for the hypothesis that the four items are indicators of a valid unidimensional latent construct. Thus, I have opted for a model of four parallel growth processes that considers the items of attitudes to authority as specific measures of issue-based attitudes to authority.

The use of single-item parallel latent growth models has allowed us to observe linear change on average from 1996 to 2012 towards more liberal opinions regarding obedience to the law and the death penalty, and towards more authoritarian opinions on censorship of film and magazines. The Death Penalty item is the one for which the largest change over time is reported, with a trend towards more authoritarian stances from 1996 to 2000, which thereafter peaks towards more liberal stances than the initial levels at age 42. These findings are seen as supporting the hypothesis of attitudes as relatively stable traits over the life course, although affected by individual circumstances and life experiences (Banaji & Heiphetz, 2010; Jost, 2006). The surprising result that comes up from my analysis of change over time is the increasing level of conservatism represented by the opinion on censorship; this result might be a period effect related to the advent of the internet (Banks et al., 1992; Wiggins & Bynner, 1993; Wiggins et al., 1997) and of the consequent pervasiveness of variegated sources and types of information, or perhaps an age effect arising from concerns related to parenthood.

Looking at the effect of individual-level characteristics on the patterns of change across items, we see that the values obtained for the average rate of change and for the autoregressive paths for the item Death Penalty suggest that even after controlling for

gender, education, occupational social class, religion and interest in politics, the trend towards more libertarian views on Obey the Law and Death Penalty, as well as towards more authoritarian opinions regarding Censorship, are confirmed. Moreover, some of the effects of the predictors look interesting: for example, being female is associated with more liberal views on the death penalty, and more conservative on censorship and stiffening sentences; however, females over time also become more liberal than males regarding censorship issues. These gender differences confirm the relevance of gender in the definition of conservatism (Pratto et al., 1997; Whitley & Aegisdottir, 2000), suggesting the need for further analyses at the item level to identify how different dimensions of authoritarianism relate to gender.

When looking at the educational level, I found that as this increases, the CMs' attitudes tend towards more liberal opinions on the death penalty and sentencing, whilst their authoritarian attitude to censorship increases. In my data, occupational social class only has a significant effect on the initial levels of the individual's attitudes, with people in non-manual occupations scoring more liberal on censorship, the death penalty and sentencing (Billig, 1984; Lipset, 1960; Napier & Jost, 2008; Paterson, 2008), but surprisingly more authoritarian on obeying the law; this specific result might warrant further investigation.

High interest in politics is positively associated with more liberal views across the four items, as well as a slower change over time regarding obeying the law and censorship. Finally, religious differences are significant, with those defining themselves as non-religious being more liberal across the four measures; moreover, my analysis highlights that people who declare themselves to be religious become more liberal at a faster pace than the religious, indicating a more significant change towards more liberal views amongst religious people.

Further key individual-level characteristics found in the literature as covariates of authoritarianism are personality traits, mostly measured through the Big-Five factors (Costa & McCrae, 1988), and—interestingly—are considered as priors to the relationship between educational level and political attitudes in general (Osborne & Sibley, 2015). Hence, a potential development of the analysis proposed here could introduce personality measures, as well as mediation analysis to assess the stability of attitudes towards authority during the life course. Another prolific research strand on covariates of socio-political

attitudes looks at the effect of intelligence and ability measures on liberalism (Deary et al., 2008b; Flouri, 2004; Schoon et al., 2010).

The main technical limitations in this study are: 1) the availability of three measurement occasions for three of the four items only, which, as previously highlighted, did not allow the assessment of the stability of the latent measure of attitudes towards authority over time. This, together with a generally scarce number of items as compared to other socio-psychological research based on more elaborate measures of authoritarianism (Altemeyer, 1981; G. D. Wilson, 1975), might raise some objections; however my choice to carry out the analysis on single items has been amply justified, and has allowed powerful analysis of change; 2) the availability of three time points only allows to test exclusively linear change. Further measurement points for the outcomes are needed in order to better assess the shape of change; 3) I have reported model estimates derived from data sets generated through MI. However, it has to be said that the same models were run also on complete cases, and the major differences were related to larger standard errors for the estimates derived from the latter, suggesting negligible bias due to the imputation.

4.9 Concluding remarks

Jost (2006) underscores a rejuvenated interest in socio-political attitudes in recent years, following key historical events (e.g. 9/11, the Iraq War and Hurricane Katrina in the US, as well as other issues of international impact such as scientific and environmental policy controversies) with methodological developments able to reinstate the importance of research programmes on individual differences in political orientation. Political psychology and related disciplines for the study of political attitude constructs seemed, in the past, to weaken in face of the end-of-ideology hypothesis developed by Converse (1964), which claimed that ordinary citizens' political attitudes lacked consistency and coherence, hence these are not part of those schemata postulated by those authors interested in attitude-behaviour relationships (Allport, 1935). Also, Jost (2006) argued that political attitudes are rather stable at the aggregate level of analysis over time, and that the instability of attitudes found by other researchers was, perhaps, a consequence of poor measurements and questionnaire construction. The types of data and analyses proposed here give strong support to the hypotheses of consistency and stability of attitudes to authority, as well as of relevant social cleavages, if we look at the micro level for a relatively long and certainly politically significant period of time in an individual's life.

Further research should be carried out, perhaps by replicating on different cohorts and geographical contexts.

5 Study 2: Assessing intergenerational transmission of attitudes to authority in the British Cohort Study 1970

5.1 Abstract

This paper aims to contribute to the theoretical corpus developed around the topic of intergenerational transmission of socio-political attitudes, by looking at how parents' authoritarian attitudes affect their children's attitudes towards authority in adulthood. In assessing this transmission mechanism, the analysis accounts for individual-level, theoretically informed factors such as gender, education, social class, religion, political interest and family background, using a longitudinal, single-cohort perspective. The direct effect of parents' attitudes to child obedience is clearly confirmed for opinions on censorship and the death penalty, but not to obeying the law even if wrong.

5.2 Introduction

The political socialization mechanism in a life course perspective was described by Langton (1969) as "the process, mediated through various agencies of society, by which an individual learns politically relevant attitudinal dispositions and behaviour patterns [...] such as the family, peer group, school, adult organization and the mass media [...], class, sex, and age sub-cultures" (1969, p. 5). The debate over whether the socio-political attitudes of parents and their children converge or diverge is encapsulated by two major hypotheses on life course and intergenerational change mechanisms: the developmental hypothesis (Erikson, 1950) and the socialisation hypothesis (E. Q. Campbell, 1969). The former asserts convergence of attitudes as the child moves through adulthood due to ageing-stability processes, and sees primary socialisation as an easing-off factor for value change at the societal level (Miller & Glass, 1989); this phenomenon is interestingly labeled as *consensual intergenerational solidarity* (Bengtson & Roberts, 1991). The socialization hypothesis, on the other hand, asserts divergence by arguing that parental ideological influence decreases over the life course due to socialisation into new groups, in addition to rapid social changes, hence identifying interacting processes of intergenerational change between the micro and macro levels of analysis. A variety of studies and methodologies have been applied to the assessment of mechanisms of cultural

transmission and political socialization since the seminal work of Hyman (1959), where it was already concluded that patterns of opposition and rebellion against parental worldviews up to his time was a “great rarity” (1959, p. 89). The work reported here contributes to this debate through detailed analysis of a large-scale, single-cohort longitudinal survey, the British Cohort Study 1970 (BCS70), where information on parents and their offspring’s attitudes were collected, respectively, in 1975 and 2012. Thus, the study enhances the understanding of the direct effect of parents’ attitudes on their children’s attitudes once adult, after accounting also for the transmission of socio-economic characteristics.

5.3 Background and hypotheses

5.3.1 Mechanisms of intergenerational transmission of attitudes within family

At the micro, individual level many studies have attributed the origin and development of social attitudes to a combination of factors: family influence and degree of identification with parents and their views (Hyman, 1959; Jennings & Niemi, 1968; Sinclair et al., 2005); peers (Harris, 1995; Poteat, 2007); school, with its effect on civic culture and political socialisation (Hesse & Thorney, 1965; Verba et al., 1995); and the media (Hargreaves & Tiggemann, 2003). The literature on agents of socialisation (Abendschon, 2013; Bisin & Verdier, 2011; L. R. Jacobs & Shapiro, 2011) distinguishes between processes of vertical socialisation, that is, from parents to children, versus horizontal or oblique socialisation, that is, from peers, the schooling system and the media to children. The economic literature also refers to vertical socialisation as direct socialisation; Bisin and Verdier (2011) extensively report empirical studies’ results that suggest correspondence between parental and offspring general preferences and attitudes, from church attendance to generalised trust and attitudes to gender roles. However, these authors also argue that there is an interaction between direct parental influence and environmental effects. The socio-economic characteristics of the family of origin are likely to define the type of school the child will go to, the media consumption patterns that he/she will develop, and the activities he/she will take part in during their formative years and later on in life. In order to summarise this mechanism of vertical transmission intermediated by socio-economic and environmental circumstances, Bisin and Verdier (2000, 2011) introduced the concept of *imperfect empathy*, i.e. “a form of altruism biased towards the parents’ own cultural traits: parents

care about their children's choices, but they evaluate them using their own (the parents' – not the children's) preferences" (2011, p. 343). On top of this, factors related to socialisation costs, which are seen as a function of parental socio-economic resources, are added to the equation, and include time spent with the child, school tuition, etc. A very similar explanatory perspective of the intergenerational transmission mechanisms of cultural traits is given by the cultural-ecological models (Bronfenbrenner, 1979), with the introduction of the concept of *developmental niche* (Super & Harkness, 1997): the child is seen as an active participator in the interactive system defined by physical and social settings of daily life, the cultural settings of child care and rearing, and the psychology of the caretakers in terms of their belief systems. In relation to this, others affirm that parents' child-rearing styles have the largest influence in shaping individuals' cultural traits such as attitudes and values (Benedict, 1934; De Jong, 2009; Lareau, 2002). Similarly to Bisin & Verdier (2011), other authors from a sociological perspective have also taken into account processes of indirect vertical socialisation, e.g. through transmission of parental education and religious values (Bucx et al., 2010; Glass et al., 1986), following which highly educated, non-religious people have less traditional positions toward family structure and gender ideology than their counterparts.

The prominence of one socialization agent over another to explain involvement and interest in socio-political issues in general is still a matter of debate (Verba et al., 2005); however, recent research using Belgian panel data found that parents and peers, together with voluntary associations, are the most important, whilst schools and media are of limited effectiveness (Quintilier, 2013). The same low relevance of schooling experiences and citizenship education was found by Keating (2014) while examining the development of attitudes towards European identity, whereas most of the variation across countries and schools was explained by individual-level factors, such as proficiency in foreign languages, socio-economic status and interest in politics. Nonetheless, in his social capital theory, Putnam (1995) stated the powerful effect of education on the development of enlightened, trusting and participating citizens; later he went on to say that the last two years of college attendance double the likelihood that individuals increase their social capital, independently of gender, ethnic group and generation, as more educated people, apart from being better off financially, also have acquired skills and habits from home and school which affect political attitudes and behaviours through a set of cognitive resources and abilities (Green et al., 2006).

The socio-political attitudes transmission mechanism hypothesized in the present work relies on the concept of imperfect empathy as stated by Bisin and Verdier (2011), as it was argued here that this framework synthesises the key features of the parental role in the definition of both direct and mediating family-level processes of cultural socialization and transmission, such that the socio-economic circumstances of the family of origin determine the parents generation's attitudes, as well as the offspring's life chances in terms of opportunities to interact in varied environments, and the quality of their educational and professional attainments, hence of the intellectual and cognitive resources that in turn partially moderate the offspring's socio-political views. Assuming a certain degree of continuity and congruence (Bucx et al., 2010; Glass et al., 1986) between the parents and their offspring's socio-economic conditions (Breen & Rottman, 1995), within a single birth cohort we would expect also congruence of socio-political worldviews in adulthood, despite potential life-course and historical differentiations (E. Q. Campbell, 1969; Erikson, 1950) which pertain to secondary socialization agencies, so that the direct effect of parental worldviews on their children's is detected.

What is looked into in the current study is direct and indirect vertical transmission of attitudes, in particular of attitudes towards authority; the study looks at how parents' authoritarian child-rearing attitudes translate into authoritarian stances in their offspring in adulthood, whilst controlling for the direct and indirect effects of both parents' and offsprings' socio-economic characteristics.

5.3.2 Intergenerational transmission of attitudes towards authority and covariates

In today's democratic systems, Leach, Coxall & Robins (2006) have pointed out that the term authority "is widely used to describe the rightful use of political power, or legitimate power" (p. 3), and have specified that it is legitimate as accepted extensively by those over whom it is exercised, so that people voluntarily obey authority; Jackson & Gau (2016) further defined legitimacy as the duty to obey that derives from the belief of the appropriateness of institutions; i.e. the trustworthiness of the same. The concept of reflexive modernization (U. Beck, Giddens, & Lash, 1994) has been used in the sociological literature to identify a series of changes around the 1980s in the relationship between the individual and the political institutions, i.e. "the renaissance of a political subjectivity, outside and inside the institutions" (1994, p. 18), or as Habermas previously

conceived it, a multi-level expressionistic concept of politics (Habermas, 1962). In line with these former theorizations of cultural change in Western societies' political institutions (also M. Weber, 1954), Inglehart and Welzel (2005) asserted that the effect of socio-economic development on social change happened first by the bureaucratization and secularization of authority during industrialization, and then post-industrial development defined the contours of a trend towards individual autonomy and post-materialist (self-expressive) values, hence towards individual emancipation from authority. The level of socio-economic development achieved by post-industrial societies affects individuals' lives by increasing social complexity and enriching the possibilities of human interactions, including social resources. Others have highlighted the importance of rising levels of education and the wartime experience, rather than economic affluence, as major explanations of cultural change across generations, and have labeled Inglehart's post-materialist values as non-materialist liberal values, as opposed to authoritarian orientations (de Graaf & Evans, 1996; Tilley, 2005). With regards to the British context, empirical research using panel studies has shown that cohorts born before the Second World War are generally more authoritarian than the next cohorts; however, independently from continuous rises in income over time, the generations born between 1950 and 1980 report similar levels of authoritarianism (Tilley, 2005). Moreover, cohorts coming of age after 1979, and subject to the advent of Thatcherism, seem to have encountered a halt in the trend towards less authoritarian worldviews (Marsh, 1990; Wiggins & Bynner, 1993). In Britain, the historical and political events of the Thatcher era, involving the privatization of education, health and welfare services, are deemed as crucial in the definition of patterns of transmission of socio-political attitudes at the aggregate level of analysis (Wiggins et al., 1997), which essentially suggest a continuity of attitudes across generations in the past forty years. However, is this phenomenon observable also at the micro, family level? Following what has been said up to now, we would expect to find a high degree of similarity between parents' and their offspring's authoritarian attitudes once adult, in particular by taking into account cohorts of people born after WWII.

However I decided to label moral worldviews towards socio-political phenomena, i.e. materialism/post-materialism (Inglehart & Welzel, 2005), left-right (Jost et al., 2009; G. D. Wilson, 1973), conservatism/liberalism (G. Evans et al., 1996; Jost, 2006), and authoritarianism/liberalism (Duckitt, 2001), there is high consensus—however non-uniform—in the literature about increased liberalism on social issues, across generations,

in post-industrial countries (Twenge, Carter, & Campbell, 2015). This work looks into the mechanism of intergenerational transmission of attitudes to authority within one generation, i.e. people born in Britain in 1970; it does not, however, assess aggregate intergenerational, social change in attitudes, rather the individual-level effects of within-family transmission mechanism of attitudes to authority, from parents to their own children.

Looking at results from the Economic and Social Research Council's 16-19 Initiative, with data collected from 1987 to 1989 on young people born in 1970 in Britain and their political socialization, Banks et al. (1992) found that the sample's attitudes to authority were generally in favor and accepting of the power structure represented by the law and order issues, with a majority of the interviewees expressing conservative consensus towards these, as well as to capital punishment; these attitudes were part of those labeled as symptoms of 'Thatcherism', or 'radical-right ideology'. More recently, by looking at the adult population in London, Gerber & Jackson (2015) showed that popular punitive sentiment is related to uncritical submission to authorities due to concerns on security, cohesion, and therefore to agreement with conservative ideology.

Individual-level differences in agreement with authoritarian and conservative stances have been related in the literature to a combination of factors/variables including: a) educational performance, with more liberal attitudes found amongst the highly educated (Banks et al., 1992; Lipset, 1960; de Regt et al., 2012; Tilley, 2005; Wiggins et al., 1997); b) social class, with lower authoritarianism/conservatism for middle-class individuals as compared to working-class individuals (Lipset, 1960; H. Park & Lau, 2016); c) religion, with non-religious people more liberal than religious (Bisin & Verdier, 2011; Bucx et al., 2010; Norris & Inglehart, 2004); d) age, with conservatism increasing with age (Bucx et al., 2010; de Graaf & Evans, 1996; Tilley, 2005); e) political participation, with lower participation associated with higher levels of authoritarianism (Heath et al., 1994; Peterson & Duncan, 1999; Singh & Dunn, 2015); and more specifically, regarding the within-family, vertical mechanism of intergenerational transmission, f) family background, including social class and education of parents, with higher levels of both associated with more liberal attitudes (Banks et al., 1992; Guldi, Page, & Stevens, 2007). The effect of gender on liberalism is still a matter of debate, with some studies highlighting higher

authoritarianism for males (Poortman & Van Tilburg, 2005), whereas others attribute higher authoritarianism to females (Brandt & Henry, 2012).

A few empirical large-scale studies have taken into account the direct influence of parents' authoritarianism on their offspring's (Bucx et al., 2010; Duriez, Soenens, & Vansteenkiste, 2008; Mirisola, Sibley, Boca, & Duckitt, 2007; Peterson & Duncan, 1999). Regarding the mechanism of vertical socialization, Adorno et al. (1950) hypothesized the direct relationship between the development of authoritarian traits in children and parenting styles, in particular, the effect on the former of strict discipline, harsh punishment and low emotional climate within the family. Kohn & Schooler (1983) and later Feldman (2003) suggested the use of parental values to measure the continuum self-direction/conformity in the realm of child-rearing values, where the continuum in conjunction with the level of perception of social threat would determine the individuals' level of authoritarianism. Duriez et al. (2008) found that parents' right-wing authoritarian attitudes (RWA) predicted adolescents' RWA, and that this relationship was mediated by parental conservative 'goal promotion', i.e. what the children are socialized in by their parents. Accordingly, Mirisola et al. (2007) confirmed the predominance of parental goal-promotion on parenting styles in the origins of authoritarian worldview in individuals. However, all the measures for parents and children in the studies mentioned above were collected at the same time, and no attempt was made to evaluate the potential for endogeneity or confounding. Based on a more powerful research design, Flouri (2004) using the British Cohort Study 1970 (BCS70) discussed the links between parental child-rearing attitudes when the children were aged 5 and offspring's attitudes in adulthood (including racism, right-wing beliefs, support for authority, support for traditional marital values, support for working mothers, political cynicism, environmentalism and support for work ethic): mothers' authoritarian child-rearing attitudes were found to be negatively associated with cohort members' antiracism and environmentalism, and positively with support for authority, for traditional marital values and for work ethic.

Flouri (2004) used multiple linear regression, with scores produced via principal component analysis of the socio-political attitudes scales as either predictors (if referred to the parents) or outcomes (if referred to the cohort members); the major flaws of this type of analysis are: 1) the incorporation of systematic measurement error in both the predictors and the outcomes, hence potentially biased model estimates (Bollen & Lennox, 1991), and

2) the effect of each predictor being conditional on the other predictors in the model—however, direct and indirect effects of parental predictors cannot be disentangled, e.g. the effect of parental social class on both the cohort members' (CM) social class and the CMs' attitudes in adulthood. In this study I aim to assess the direct influence of parental authoritarian attitudes on their offspring once adult, after controlling for social background and individual-level characteristics of both the parents and their offspring. This study is partly a replication of Flouri's study, with a more advanced methodological approach, as explained in the methodological sections below.

5.3.3 Research questions and hypotheses

My primary research question is whether a direct mechanism of intergenerational transmission of attitudes towards authority can be identified; that is, how are parents' attitudes to child-rearing associated with their offspring's attitudes to legal authority in adulthood? Hence, the main working hypotheses are as follows:

HP1: Parents' authoritarianism is transmitted to their offspring, so that there is a direct effect of parents' attitudes on their offspring's;

HP2: Socio-economic characteristics are associated with and define adherence to authoritarian stances in both parents and their offspring;

HP3: Parents' socio-economic characteristics have both indirect (Hypothesis 3.1), and direct (Hypothesis 3.2) effects on their offspring's attitudes towards authority; this finding would support the developmental niche (Super & Harkness, 1997) and the imperfect empathy (Bisin & Verdier, 2011) hypotheses.

5.4 Methods

5.4.1 Data: the British Cohort Study 1970

I used data from the BCS70, a longitudinal study representative of the birth cohort born in one week in Britain in 1970. I used questions administered to the cohort members (CMs) in 2012, when they were 42 years old, and questions administered to their parents in 1975. These choices were driven in part by the assumption that most CMs at this age will have reached a stable lifestyle, as well as gone through many of the life-cycle stages related to partnership and family formation, resembling the life circumstances of their parents in

1975. In 1970 the average age of the CMs' mothers and fathers was respectively 26 and 29. This is somewhat younger than the CMs themselves, but given that all of the CMs' parents had had at least one child by 1970, I wanted to pick an age for the CMs themselves that was old enough whereby the majority of those that wanted and were able to have children would have become parents themselves.

The key outcome measures of attitudes to authority were three questionnaire items: 1) "The law should be obeyed even if wrong" (Obey the Law), 2) "For some crimes the death penalty is the most appropriate sentence" (Death Penalty), 3) "Censorship of films and magazines is necessary to uphold moral standards" (Censorship). The items were all measured through 5-point Likert-type scales (from Strongly Agree to Strongly Disagree), and were recoded into values ranging from 0 to 4, so that the higher the value, the less conservative/authoritarian the opinions elicited.

Table 16 reports the distributions of the items. The median response was 'Agree' for Censorship and Death penalty, somewhat towards the authoritarian end of the scale, but was 'Cannot Say' for Obey the Law, indicating greater ambivalence for this later item. The cross-sectional sample for 2012 was made of 9,841 CMs; however, a smaller number answered the three items under question.

Table 16 Sample percentage values for the response categories of the items for Attitudes to authority, Cohort members' questionnaire, Sweep 8, year 2012

Items	Category of answer (% over N)					Total (N)
	Strongly disagree	Disagree	Cannot say	Agree	Strongly agree	
Obey the Law	2	18	30	43	6	8,653
Censorship	4	11	21	45	19	8,653
Death Penalty	12	13	12	36	27	8,605

Explanatory variables for the CMs' socio-economic characteristics were: gender (baseline is Male, 48%); educational level, with Below National Vocational Qualification (NVQ) level 2 as the baseline (19%), versus NVQ level 2 and above; occupational social class, coded as Manual (baseline, 31%) versus Non-manual; political involvement, measured as Political Interest in a continuous scale, where high score means higher interest; religion, recoded in Christian/Others (baseline, and representing 67% of responses) versus No Religion.

5.4.2 Parents' attitudes to authoritarian child-rearing and SES characteristics in 1975

Authoritarian child-rearing attitudes were measured with 13 5-point Likert-type items (ranging from Strongly Agree to Strongly Disagree) tapping opinions on child obedience and discipline, such as, for example, "Children should not be allowed to talk at the meal table" (Talk), "Children under five should always accept what their parents say as being true" (Accept) (see the full list of items and related labels in the online Appendix); the response categories were coded such that higher values indicated less authoritarian opinions. The socio-demographic characteristics that I took into account as affecting the intergenerational transmission mechanism were: parents' highest educational qualification, recoded into No qualification (baseline, 41% of cases) versus NVQ qualification and above; father's social class, coded as Manual (baseline, 65%) versus Non-manual; mother's age in 1975, as 75% of respondents to the parents questionnaire were the mothers and 24% were both parents; finally, to measure parents' religious beliefs I selected a proxy for it, which was asked to the CMs in 2012 in the form of whether they were raised according to any religion and recoded into Christian/Others (baseline, and representing 67% of responses) versus No religion.

5.4.3 Methods of analysis

The first step of the analysis involved the assessment of the psychometric properties of the measure of parents' authoritarianism available in the BCS70's 1975 sweep, i.e. Authoritarian Child-rearing, mostly tackling opinions on child obedience and conformity, in order to represent beliefs of close-knit vertical relationships (H. Park & Lau, 2016)⁴. Stenner (2005), Feldman (2003), and Hetherington & Weiler (2009) have shown that measuring authoritarianism with questions about child-rearing values rather than about an

⁴ A further measure of authoritarian attitudes is available for the parents of the BCS70 in 1975, and labeled as Authoritarian Worldview; we have run the same models with the two measures, as well as compared the models based on either of the two measures. I found that the two latent variables were highly correlated, to the point of multicollinearity ($r = .919$), which rendered unstable results when both were used in the same model. Moreover, the fit statistics for the models using the two-factor solution suggested a higher validity of the uni-dimensional measure, which was therefore selected for the analysis in this text.

individual's attitudes to obedience and conformity constitutes a less tautological and more valid process; this has been used recently to analyse authoritarianism in cross-national contexts (H. Park & Lau, 2016; Singh & Dunn, 2015; Tillman, 2013). Unfortunately, although these items therefore represent reasonable measures of authoritarian attitudes for the parents in 1975, these same items were not available to measure authoritarianism among the CMs in 2012, for whom, instead I used the attitudes to authority items described earlier.

As I was dealing with categorical indicators, I used an Item Response Theory (IRT) model to represent the parents' construct of authoritarian child-rearing, which hypothesises unmeasured, i.e. latent, causes to account for the observed associations among the item responses. Specifically, I fitted a one-dimensional item factor analysis model for ordinal items (e.g. B. O. Muthén, 1984), which is equivalent to a 2-parameter normal ogive item response theory model (Lord, 1977; B. O. Muthén, 1983).

The second step of the analysis was the estimation, through structural equation models (SEM) (Bollen, 1989) of the relationships between parental authoritarian child-rearing attitudes and the CM's attitudes to authority in adulthood, controlling for both direct and indirect socio-economic characteristics. I used the CM's outcome items Obey the Law, Censorship and Death Penalty as three distinct but correlated outcomes (see also results from Study 1 in this thesis). Three models were compared: Model 1 assessed HP2 by modelling the effect of CMs' socio-economic characteristics on their attitudes to authority; Model 2 introduced the direct and indirect effects of parents' socio-demographic characteristics in 1975 on the CMs' attitudes in 2012, where the indirect effects represented the mediation of the parents' socio-economic status on the CMs' attitudes by the CMs' socio-economic factors; finally, Model 3 introduced the parents' authoritarian attitudes, i.e. the measure of authoritarian child-rearing, addressing HP1 (direct effect of parents' attitudes on the CMs' attitudes), as well as HP2 (direct effect of parents' socio-economic factors on their attitudes), and HP3 (partial mediation of CMs' characteristics in the relationship amongst parents' characteristics, their attitudes, and the CMs' attitudes).

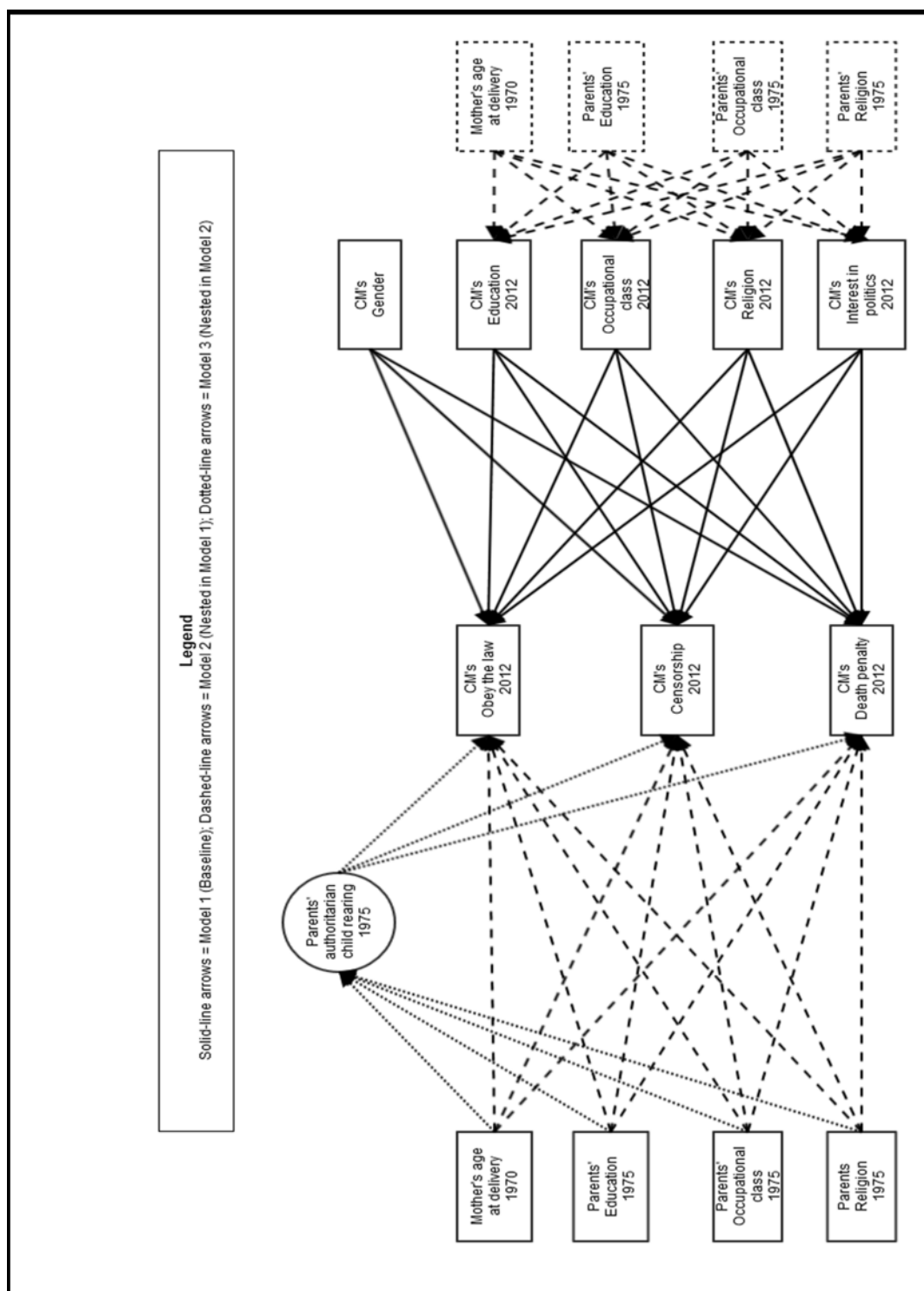
Following Hu & Bentler (1999), I evaluated the fit of the models using a combination of the Root Mean Square Error of Approximation (RMSEA), and the Comparative Fit Index (CFI). Values of RMSEA less than 0.06, or greater than 0.95 for the CFI were taken to

indicate good fit; values of less than 0.08 and more than 0.90 respectively were taken to indicate moderate fit.

Missing data. Data from the 1970 cohort study exhibit substantial attrition (for details see Plewis et al., 2004). Mostafa & Wiggins (2015) found that in the BCS70 wave non-response was particularly related to cohort members' low socio-economic class and parents' low educational attainment. Including these variables in the analysis would render their related missingness as 'Missing At Random' (MAR; R. J. A. Little & Rubin, 1989), i.e. the observed data would not be biased by their effects, but only if my models were estimated under a full-information estimator such as Full-Information Maximum Likelihood (FIML). The models proposed in this work were instead fitted by a limited-information Weighted Least Squares (WLS) estimator, as implemented in the Mplus software (L.K. Muthen & B. O. Muthen, 1998). This estimator computes model parameters for the ordinal outcomes based upon only uni- and bivariate relationships among the dependent variables, and not the higher order relationships that are also modelled by FIML. The WLS estimator can use information from exogenous predictor variables to render missingness in the dependent variables as MAR, but not the information in the multivariate distribution of the full set of dependent variables. This presented a potential problem for our analysis, because cohort members' social class, one of the predictors of attrition found by Mostafa & Wiggins (2014), features as an endogenous, dependent variable in our model. To ameliorate for this, we used the procedure recommended by Asparouhov & Muthen (2010) for supporting the MAR assumption using all of the variables in a model estimated by WLS, which is to supplement WLS with Multiple Imputation (MI) (Enders & Bandalos, 2001) for the estimation of the statistical models presented below. I used the software Mplus v7.31 (L. K. Muthén & Muthén, 1998), with estimation of 10 imputed data sets, using a Markov-Chain-Monte Carlo (MCMC) (John J McArdle et al., 2009) algorithm based on Gibbs sampling, with 100 iterations. The imputation model contained all of the variables in the analysis model, and created imputed data sets with 14,956 cases. As a sensitivity analysis the models were also estimated using available complete cases only (with listwise deletion the sample had 6,321 cases), which therefore meant making the stronger assumption of data Missing Completely At Random (MCAR); The results from the two sets of analyses were very similar and led us to the same conclusions, but because of their weaker assumptions and smaller standard errors I report the results from the multiple imputation models here. Figure 5.1 shows the structure

of the models as a path diagram. In this diagram circles denote the latent variable for Parents' Authoritarian Child-rearing attitudes. The rectangular boxes represent observed variables. The straight, uni-directional arrows represent regression relationships (Bollen, 1989).

Figure 5.1 Theoretical model of the mechanism of vertical intergenerational transmission of attitudes to authority: Model 1 (solid-line paths), Model 2 (dashed-line paths), Model 3 (dotted-line paths)



For Model 1, represented with solid-line arrows, CMs' socio-economic characteristics, as measured in 2012, predict CMs' attitudes to authority as represented by the three outcomes. Based on the theoretical background presented above, I expect that: CMs will express more liberal opinions on the three outcomes under analysis the higher their educational qualifications; CMs' attitudes will be more liberal if they belong to the non-manual occupational social class; the CMs who do not belong to any religion have more liberal attitudes; the higher the interest in politics, the more liberal the attitudes. This model was nested within an alternative model (Model 2) where parents' socio-economic characteristics were considered as predictors of both the CMs' socio-economic characteristics as well as of their attitudes in adulthood: this hypothesis is graphically represented in Figure 1 by the dashed paths from each of the parental background characteristics towards each of the CMs' observed control variables. For this model I expected that parents' socio-economic characteristics, as measured in 1975, affect the configuration of CMs' socio-economic characteristics, as well as directly and indirectly their attitudes to authority in 2012. The dashed arrows that connect parents' socio-economic characteristics to CMs' attitudes aim to assess the direct effect of the former on the latter, and control for the theoretical assumption that parents' socio-economic status affects the environment in which the child grows up, hence the definition of their social identity (Harris, 1995; H Tajfel, 1981), following the theoretical mechanism labeled as either developmental niches (Super & Harkness, 1997) or imperfect empathy (Bisin & Verdier, 2011). Finally, these two models were nested in a third one (Model 3) that also assessed the direct effects of parents' authoritarian child-rearing on the CMs' attitudes in 2012, after controlling for the socio-economic characteristics of both the CMs' and their parents; in this model I expected that the latent measure of parents' authoritarian attitudes in 1975 predicts the CMs' attitudes to authority in adulthood as measured by the three outcomes chosen in 2012.

5.5 Results

5.5.1 Parental attitudes in 1975: validation of the scale attitudes to Authoritarian Child-rearing

The unidimensional IRT model applied to the 13 attitudes to child-rearing items gave a reasonable but not good fit to the data, with mean RMSEA across the ten imputed data sets = 0.052 and CFI = 0.930, below the acceptability thresholds for the two indices. Table 2 reports the factor loadings and related standard errors.

Table 17 1-factor solution with categorical indicators for the scale Authoritarian Child-rearing. Estimated factor loadings (standardised values), standard errors (S.E.); sweep 1975, British Cohort Study 1970

Item	Standardized Factor loading	
	Factor loading	S.E.
Obedience	0.216	0.012
Activities	0.371	0.01
Vandalism	0.403	0.011
<i>Talk</i>	<i>0.480</i>	0.01
<i>Accept</i>	<i>0.557</i>	0.009
Quarrels	0.384	0.011
Spoil	0.337	0.011
<i>Attention</i>	<i>0.603</i>	0.009
<i>Talk back</i>	<i>0.573</i>	0.009
Explanation	0.381	0.01
Freedom	0.425	0.01
Understand	0.342	0.011
<i>Told twice</i>	<i>0.570</i>	0.009

Although all of the factor loadings reported above are statistically significant, only some of the items (in Bold Italics) have a medium-strong relationship (> 0.45) with the latent factor. These items seem to conceptually identify a particular sub-dimension of the whole

scale, that is, expected children's behaviour towards their parents. Fitting the IRT model to just these five items gave more than satisfactory values for RMSEA ($=0.028$), CFI ($=0.996$) and TLI ($=0.992$). Though these items gave a narrower view of the construct, because of their greater reliability I retained this five-item measure of attitude to authoritarian child-rearing in subsequent analyses.

5.5.2 The mechanism of intergenerational transmission of attitudes to authority

Model 1 in Table 18 reports the effects of the CMs' socio-economic characteristics on the three outcomes under analysis. The coefficients suggest differing effects of the same predictors across the three outcomes. For Obey the Law, the effects of gender and educational level are not significant, whilst higher levels of interest in politics, being non-religious and with a manual occupation define less strict and more conditional view on adherence to the law. Model 1 suggests that males, with a higher interest in politics, who are non-religious and with a non-manual occupation express more liberal opinion on Censorship. For the Death Penalty item, females, with a high interest in politics, in a non-manual occupation and with higher educational qualifications are those who express a more liberal view.

Model 2 introduces the direct effects of parents' characteristics on the CMs' attitudes, whilst also controlling for the effect of the former on the CMs' characteristics. In this model, the CMs' gender becomes significant for Obey the Law, with males being less authoritarian than females, whilst occupational social class becomes non-significant; for this item, none of the parents' characteristics significantly affect the CMs' level of liberalism regarding adherence to the law. The same results as in Model 1 are valid also for Model 2 for the item Censorship, for which again I found that parents' socio-economic characteristics do not seem to play any direct role in the definition of more or less libertarian stances over this.

Table 18 Estimated models for the mechanism of intergenerational transmission of attitudes to authority. British Cohort Study 1970, sweeps 1975 and 2012

<u>Outcomes</u> and predictors	Model 1:		Model 2:		Model 3:	
	CMs' SES		Parents' SES		Parents' Attitudes to child obedience	
	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>
<u>Obey the Law 2012</u>						
<i>Female</i>	-0.026	0.015	-0.054	0.014	-0.054	0.014
<i>Interest in politics</i>	0.065	0.012	0.057	0.012	0.057	0.012
<i>Non-religious</i>	0.082	0.011	0.078	0.015	0.078	0.015
<i>Non-manual occupation</i>	-0.032	0.014	-0.015	0.014	-0.015	0.014
<i>NVQ 2 and above</i>	0.016	0.012	0.02	0.012	0.02	0.012
<i>Mother's age</i>			0.024	0.013	0.025	0.012
<i>Parents' qualification: NVQ and above</i>			0.006	0.015	0.002	0.015
<i>Parents' occupation: non-manual</i>			-0.024	0.013	-0.027	0.014
<i>Parents' religion: none</i>			0.002	0.015	0.001	0.015
<i>Parents' attitude to child obedience</i>					0.018	0.016
R-square	0.013	0.003	0.014	0.003	0.014	0.003
<u>Censorship 2012</u>						
<i>Female</i>	-0.141	0.013	-0.161	0.012	-0.161	0.012
<i>Interest in politics</i>	0.061	0.011	0.061	0.012	0.061	0.012
<i>Non-religious</i>	0.139	0.013	0.127	0.013	0.127	0.013
<i>Non-manual occupation</i>	0.056	0.014	0.065	0.014	0.065	0.014
<i>NVQ 2 and above</i>	-0.015	0.014	-0.002	0.014	-0.002	0.014
<i>Mother's age</i>			0.027	0.014	0.032	0.014
<i>Parents' qualification: NVQ and above</i>			-0.004	0.017	-0.023	0.016
<i>Parents' occupation: non-manual</i>			0.008	0.015	-0.005	0.016
<i>Parents' religion: none</i>			0.024	0.016	0.019	0.016
<i>Parents' attitude to child obedience</i>					0.088	0.017
R-square	0.052	0.005	0.055	0.006	0.062	0.007
<u>Death Penalty 2012</u>						
<i>Female</i>	0.105	0.013	0.08	0.011	0.080	0.011
<i>Interest in politics</i>	0.234	0.013	0.231	0.012	0.231	0.012
<i>Non-religious</i>	0.002	0.011	0.019	0.012	0.019	0.012
<i>Non-manual occupation</i>	0.128	0.016	0.145	0.015	0.145	0.015
<i>NVQ 2 and above</i>	0.064	0.014	0.082	0.014	0.082	0.014
<i>Mother's age</i>			0.047	0.017	0.052	0.017
<i>Parents' qualification: NVQ and above</i>			0.065	0.017	0.042	0.017
<i>Parents' occupation: non-manual</i>			0.065	0.015	0.049	0.016
<i>Parents' religion: none</i>			-0.024	0.013	-0.03	0.013
<i>Parents' attitude to child obedience</i>					0.103	0.015

R-square	0.101	0.007	0.135	0.009	0.145	0.009
<u>CM's Interest in politics</u>						
<i>Mother's age</i>			0.05	0.011	0.05	0.011
<i>Parents' qualification: NVQ and above</i>			0.121	0.013	0.121	0.013
<i>Parents' occupation: non-manual</i>			0.099	0.012	0.099	0.012
<i>Parents' religion: none</i>			-0.096	0.011	-0.096	0.011
R-square			0.051	0.006	0.051	0.005
<u>CM's Religion</u>						
<i>Mother's age</i>			-0.008	0.01	-0.008	0.01
<i>Parents' qualification: NVQ and above</i>			-0.001	0.012	-0.001	0.012
<i>Parents' occupation: non-manual</i>			-0.006	0.011	-0.006	0.011
<i>Parents' religion: none</i>			0.504	0.014	0.504	0.014
R-square			0.256	0.014	0.255	0.014
<u>CM's Occupational social class</u>						
<i>Mother's age</i>			0.03	0.015	0.03	0.015
<i>Parents' qualification: NVQ and above</i>			0.125	0.013	0.125	0.013
<i>Parents' occupation: non-manual</i>			0.142	0.014	0.142	0.014
<i>Parents' religion: none</i>			-0.064	0.013	-0.064	0.013
R-square			0.059	0.006	0.059	0.006
<u>CM's Qualifications</u>						
<i>Mother's age</i>			0.01	0.011	0.01	0.011
<i>Parents' qualification: NVQ and above</i>			0.156	0.015	0.156	0.015
<i>Parents' occupation: non-manual</i>			0.085	0.013	0.085	0.013
<i>Parents' religion: none</i>			-0.073	0.011	-0.073	0.011
R-square			0.051	0.006	0.051	0.006
<u>Parents' attitudes to child obedience</u>						
<i>Mother's age</i>					-0.056	0.011
<i>Parents' qualification: NVQ and above</i>					0.224	0.01
<i>Parents' occupation: non-manual</i>					0.155	0.012
<i>Parents' religion: none</i>					0.053	0.017
R-square					0.101	0.006

Note: coefficients in bold are significant at the 95% confidence level. N = 14,956 cases in imputed data.

However, parents' socio-economic background does significantly affect the level of agreement with the item stating the reintroduction of the death penalty, as on top of the same effects reported in Model 1, I found that the higher the parents' qualification, in conjunction with a non-manual occupation, the more liberal is the CMs' view on capital punishment; for this item Model 2's R-square reports a 3.4 percentage points increase on

the explained variance compared to Model 1. Model 2 also elucidates the relationship between each of the parents' and CMs' socio-economic characteristics, i.e. to take into account the intergenerational transmission of socio-economic status and its effect on socio-political attitudes. Model 2 suggests that having older parents, with a higher educational qualification, from a non-manual occupation and a religious background defines a high interest in politics; regarding religious beliefs, parents' religiosity is the only significant predictor of their offspring's in adulthood. CMs' occupational social class is significantly and positively predicted by their parents' qualification and occupation, as well as marginally by the parents' religion; very similar coefficients are also found for the prediction of CMs' educational level by parents' qualification, occupational class, and religion, respectively 0.156, 0.085, and -0.073.

Finally, Model 3 assesses the effect of parents' authoritarianism as expressed by the latent measure of attitudes to child obedience, on the CMs' attitudes to authority in adulthood. The introduction of parents' attitudes does not affect the coefficients related to the prediction of Obey the Law and Censorship by means of the CMs' characteristics; however, mother's age becomes significant for these same outcomes, although with low coefficients. Moreover, this model highlights the effect of parents' socio-economic characteristics on their attitudes to child obedience; i.e. parents show lower authoritarianism when the mother is younger, the parents' educational qualification is above NVQ level, are in a non-manual occupation and the CM was raised in a non-religious family. Also, parents' socio-economic background explains 10% of the measure of attitudes to child obedience. Most importantly, Model 3 allows us to test HP1 about the effect of parents' attitudes to child obedience on the CMs' attitudes to authority in adulthood: the path from this measure to Obey the Law is not significant (0.018, S.E.=0.016), whilst the parental measure significantly, and in the expected direction, predicts liberal stances regarding Censorship (0.088, S.E.=0.017) and Death Penalty (0.103, S.E.=0.015). In order to further confirm this, I also ran an omnibus test for the significance of the effect of parental attitudes on the three CMs' measures of attitudes to authority, i.e. a Wald test (Engle, 1983) with a null hypothesis of non-association between the measures: the results (Chi-square=47.666, 3 degrees of freedom) suggest rejection of

the null hypothesis in favour of the importance of the direct effect of parents' attitudes to child obedience on the CMs' attitudes to authority in adulthood, as per HP1.

The local fit measures represented by the R-square values obtained for each outcome variable in 2012 indicate Model 3 as the most powerful in the explanation of the outcomes. However, across the three models for each outcome I must underscore that the most relevant improvement in their predictive power is for the Death Penalty item with an increase in the R-square from 10% in Model 1 to 14% in Model 3, followed by the Censorship item, with a one percentage point increase across the three models and, finally the Obey the Law item, for which the predictive power of the three models remains low, with a maximum of 1% of the total variance explained. These differences in the amount of variance explained by models across the three items are mirrored by the low correlations among the three outcome attitudes' residual variances: 0.054 between Obey the law and Death penalty in Model 3, and with the highest correlation coefficient being between Death penalty and Censorship of 0.163 in Model 3. These correlations, although statistically significant at the 95% confidence level, indicate that the three items represent different facets of the measure of attitude to authority, and support my choice to analyse these outcomes as separate measures.

The fit statistics for the three models are as follows: Model 1 is a just-identified model, i.e. it has no degrees of freedom and therefore is a perfect fit to my data; Model 2's CFI is .767, and the RMSEA is .086; finally, the Model 3's CFI equals to .879, and the RMSEA .047. Only the RMSEA for Model 3 meets the cut-off criterion for good fit according to Hu & Bentler (1999). A low CFI can occur when the average correlation among the observed variables is low, and the number of observed variables in a SEM is relatively high (e.g. > 14 in Kenny & McCoach, 2003). As shown by the R-squares, the average correlation between the predictors and the outcome variables was low for two of the three outcome variables, and the number of observed variables was 17, higher than most of the examples assessed by Kenny & McCoach (2003). It therefore seemed plausible that these factors were playing a part in the low CFI measure. However, at least one source of the low correlations, that among the ultimate outcome measures, did not appear to be playing an important role in the CFI misfit. This was demonstrated by the fact that when we ran model 3 separately for the three outcome variables, the CFI was not appreciably improved.

5.6 Discussion

In this work I have examined whether there is congruence between parents and their offspring's attitudes in adulthood, based on a single-cohort study, the BCS70, which allows observing this mechanism within families in Britain from 1975 to 2012. I have intended transmission as a mechanism that develops within the family context, and I have assumed that the main influence on this is given by the cohort members' socialisation process in early childhood; hence, I have measured the intergenerational mechanism as a synthesis of influences related to both the CMs' socio-economic background, and their parents' attitudes to authoritarian child-rearing.

I now discuss the empirical results obtained in the previous section, with reference to the final model, Model 3. Before going on to evaluate the model parameters I must consider the model fit criteria for the various outcome variables and the models as a whole. The only outcome variable with a moderately large R-square was that for Death Penalty. The predictor variables were much less effective in explaining the variance of Censorship and particularly Obey the Law. As the RMSEA was acceptable, I decided to interpret the results for Model 3. I am of course aware that the predictor variables are much less strongly related to Censorship and especially Obey the Law than they are to Death Penalty, but I consider this difference highly informative and interesting, as I hypothesise that opinions on the reintroduction of capital punishment refer mostly to the individual's view on severe punishment—in particular for types of crimes socially and normatively less acceptable than others, as well as more distant experientially than, perhaps, reading offensive, discriminatory articles in magazines and/or not stopping the car at a red light. Hence I speculate that opinions on the death penalty require higher levels of abstract and critical reasoning, as well as knowledge of the philosophical and practical debates around the efficacy of the death penalty as a deterrent for serious crimes (Camus, 2004; Jost & Sidanius, 2004), which are cognitive abilities strictly related to educational attainment and perhaps a higher order of ideological liberalism (Deary et al., 2008b; Onraet et al., 2015; Schoon et al., 2010).

Moving on to interpreting the parameter estimates, the direct effect of parents' attitudes to child obedience (HP1) is clearly confirmed for the items Censorship and Death Penalty, as

more liberal opinions on this measure for parents in 1975 correspond to more liberal views for the CMs in 2012. These results support the developmental hypothesis (Erikson, 1950), which states a within-family intergenerational congruence of attitudes in adulthood. Furthermore, considering the long timespan between the measurement occasions of parents' authoritarianism in 1975 and the CMs' attitudes to authority in 2012, hence the diverse life-course events and historical changes that the CMs will have experienced in those 37 years, the importance of the results shown here in support of the developmental hypothesis is reinforced. HP2 and HP3 have helped us to characterise the mechanism of intergenerational transmission of attitudes to authority in terms of interacting individual-level factors pertaining mostly to social stratification variables, such as education and occupational social class of both parents' and their offspring's. Indeed, I have inserted these structural components in the transmission mechanism, as suggested by the literature discussed earlier: education, occupational social class and religion were taken into account as affecting both populations of reference, as these measures were available for both; age was controlled for the parents only, as the CMs were all born the same year; gender was taken into account for the CMs only, as this was not found to be discriminatory for the parents (with 99.2% of the parental questionnaires answered by either the mother or both parents); finally, the measure of political participation, as represented in my work by interest in politics was only available for the CMs. Hence, testing HP2 and HP3 has primarily intended to be a way to formally introduce key sociological control variables in the explanation of the mechanism of intergenerational transmission of socio-political attitudes. When considering the test of HP2 separately for parents and CMs, I found that most of the theoretical expectations are met for the parents' population, as younger parents express more liberal views (Bucx et al., 2010; de Graaf & Evans, 1996; Tilley, 2005), and higher levels of education and class are associated with less authoritarian stances (Banks et al., 1992; Lipset, 1960; H. Park & Lau, 2016); finally, non-religious family environment predicted more liberal opinions on child obedience (Bisin & Verdier, 2011; Norris & Inglehart, 2004). However, when I tested the same HP2 on the CMs, I found that despite the significant positive association between parents' and CMs' education, occupational social class and religion, the effects of these same factors for the CMs' population differ for the three outcomes under analysis, after controlling for parents' attitudes: higher educational level means a more liberal stance on Death Penalty, but its effect is not

statistically significant for Obey the Law and Censorship; higher occupational social class defines more liberal views on Censorship and Death Penalty; being non-religious significantly predicts higher liberalism for Obey the Law and Censorship, though its effect is non-significant for the Death Penalty item. As far as political involvement is concerned, this appears to be the strongest and most consistent predictor of liberal stances for the three outcomes, with corroboration of theoretical expectation (Heath et al., 1994; Singh & Dunn, 2015). Finally for Obey the Law and Censorship the hypothesised higher conservatism of women (Brandt & Henry, 2012) is confirmed, whilst females are more adverse to the reintroduction of capital punishment. HP3 can now be discussed mostly in terms of the direct effects of parents' socio-economic characteristics on the CMs' attitudes to authority, as the key indirect effects from family's social class, education and religion to the CMs' have already been mentioned. Therefore, I found that mother's age is a significant predictor of CMs' opinions on all the three outcomes; however, with an effect opposite to the effect of this same variable on the parents' level of authoritarianism, meaning that CMs with older mothers at birth reported in adulthood more liberal opinions; perhaps this may be due the omission of a curvilinear relationship between parents' age and their authoritarianism, or of some important interaction. As far as parents' socio-economic characteristics are concerned, for Obey the Law and Censorship, mothers' age is the only significant direct predictor.

5.6.1 Strengths and limitations

The strengths of this work are in the type of data used and analysis performed, which allow evaluating the mechanism of intra-family transmission of socio-political attitudes over time, considering a relatively long time-span and a large sample, taking appropriate account of sample attrition. I have also conducted psychometric tests on the original scales used to measure parents' attitudes and found that alterations of the original measures improved the reliability of the scales for my purposes. My analyses suggested that the quality of the scale for the measure of parents' authoritarian child-rearing may be suspect, and that a modification of its original format could fruitfully be pursued.

Limitations are related mostly to unobserved factors theoretically affecting intergenerational transmission of socio-political attitudes, such as the effect of genotypes;

indeed, the theoretical framework described up to now is largely centered on a paradigm that considers individual-specific factors and environmental influences in the formation and development of socio-political attitudes. However, other scholars have discussed the importance of genetic inheritance, and often argued, through experiments and twin studies, over the supremacy of genetic rather than cultural influences (Alford et al., 2005; Bouchard & Loehlin, 2001; Martin et al., 1986). Nonetheless, even strong supporters of the genetic explanation argue for the need to take into account environmental and genetic influences, developmental influences, assortative mating and evolution (Bouchard & Loehlin, 2001). Finally, authors such as Harris (1995) pointed to pitfalls in genetic studies of personality and socio-psychological traits in general, as—so the author stated—their approach tends to oversimplify the effects of the family context. Harris also focused on the importance of outside-family influences on personality and behavioural development by referring to Tajfel's (1981) theory of social identity as well as to her own studies on social categorisation and how social groups can influence personality. Due to the narrow scope of this piece of work, hypotheses related to the influence of genetic mechanism, peers and group-social identity, schooling, and personality traits are not taken into account, and are considered here as unobserved factors, i.e. potential confounders of the relationship between parents and their offspring's socio-political attitudes.

In addition, considering the relevance given by previous studies to education, measures of intelligence and cognitive ability may also be key factors in understanding the formation and development of socio-political attitudes (Deary et al., 2008b; Schoon & Cheng, 2011). Hence, the present research has been extended to assess whether cognitive ability might be a predictor of political attitudes, even after the mechanism of direct intra-family transmission of attitudes towards authority, as explored here, is controlled for.

The development of high-quality panel surveys such as the BCS70, in a cross-national and longitudinal perspective, is necessary to inform on processes through which individuals' and groups' attitudes and value systems are shaped. Furthermore, more measurement occasions for both the populations under analysis here would enhance the observation of the longitudinal stability of parent-child attitude similarity, and cross-cohort comparison would account for aggregate societal change (Miller & Glass, 1989). Longitudinal stability

in attitudes towards authority amongst those born in Britain in 1970 was indeed assessed in Study 1, in this present work.

5.6.2 Conclusions

Amongst the three indicators of attitudes to authority, opinions towards the death penalty in adulthood were shown to be moderately associated with the hypothesised mechanism of within-family transmission of socio-political attitudes, whilst attitudes towards censorship were only weakly associated. Such attitudes seem to represent a particularly socially stratified topic, more clearly defined by the immediate social structure which the CMs belong to, i.e. non-conservative stances on the death penalty are significantly associated with being female, with high interest in politics, with a non-manual occupation, higher educational achievement, and with a family socio-economic background characterised by similar educational and occupational level, and with older and religious parents. This interesting and unexpected effect of religious upbringing on liberal opinions concerning the death penalty needs further investigation.

The results here show the importance of the primary socialization agency—the family—in the development of specific authoritarian/liberal attitudinal traits. The promotion of liberal, reflexive attitudinal traits should be reinforced at the institutional level by, in primis, eliciting critical discussions on socio-political issues and civic participation during the formative years, with the aim to develop those self-expressive value systems that enable individuals to be conscious actors in the inevitable process of social change, rather than powerless bystanders.

6 Study 3: Childhood antecedents of intergenerational transmission of attitude to authority

6.1 Abstract

This paper assesses the effect of parental attitudes to child obedience on their offspring's opinions on adherence to the law, censorship and the death penalty, in adulthood, after controlling for childhood cognitive ability. Through this, I also aim to test existing hypotheses on the direct effect of cognitive ability in childhood on socio-political attitudes in adulthood in the British population.

I have used the British Cohort Study 1970, which contains measures of parents' attitudes to child obedience in 1975, as well as measures of the cohort members' (CMs) cognitive ability in 1980, at age 10; my outcomes are three items regarding the CMs' attitudes towards adherence to the law, censorship and the death penalty in 2012, when the CMs were 42. I assess my main hypothesis separately for men and women.

I first run a path model to assess the direct effect of the CMs' general cognitive ability in 1980 on the CMs' attitudes to authority in 2012, whilst controlling for the socio-economic status characteristics of both the CMs and their parents. Then, the parents' attitudes were introduced as a predictor, with the intention to assess the attitudinal congruence of the parents' and the CMs' attitudes. Cognitive ability in childhood remains the strongest predictor of attitudes to authority in adulthood for both sexes, with gender idiosyncrasies mostly related to the differential effects of social class position.

6.2 Introduction

It has been shown consistently that general cognitive ability measured in childhood can predict liberal social attitudes in adulthood (Deary et al., 2008b; Denny & Doyle, 2008; McCourt et al., 1999; Onraet et al., 2015; Schoon et al., 2010). The importance of cognitive ability in predicting liberalism/authoritarianism has been hypothesised in relation to the robust, strong effect of education on a series of covariates, e.g. political interest, civic duty, civic participation, and social trust (Deary et al., 2008a; Denny & Doyle, 2008; Hauser, 2000; Schoon, 2010; Sturgis, 2010). In this work, I focus on cognitive ability and

its relationship with the authoritarianism/liberalism continuum, and specifically attitudes to authority, hence tackling the socio-cultural rather than the economic-hierarchical domain of socio-political attitudes (Duckitt & Bizumic, 2013; Feldman, 2003; see also Section 1.1 for explanation of this distinction). I set out to assess whether the relationship between cognitive ability and authoritarianism reflects—in part—socialisation experiences within the family environment when the child is growing up, rather than solely arising from a direct effect of cognitive ability. As the starting point for this analysis I use the studies of the British cohort born in 1970 (Deary et al., 2008a, 2008b), which found a positive association between higher cognitive ability in childhood and more liberal values in adulthood; in addition to replicating Deary et al.'s study, I also introduce a measure of parents' authoritarianism, as collected in 1975, when the cohort members (CMs) were aged five. In particular, I examine the direct and indirect effects of a measure of parents' attitudes to child obedience on three correlated measures of the CMs' attitudes to authority, specifically opinions on adherence to the law, censorship, and capital punishment. Hence, the research question explored here is: do parents' attitudes to child obedience predict their children's attitudes to authority in adulthood, after controlling for socio-demographic characteristics of parents and their offspring, as well as for the offspring's cognitive ability in childhood?

The paper is organised as follows: this first section includes a review of the literature on authoritarianism/liberalism and cognitive ability; the second section defines the within-family factors moderating the relationship between cognitive ability and authoritarianism; the third section describes the methodology used; the fourth section describes the main results; the discussion and conclusions are presented in Section 5; finally, complementary tables and results can be found in the appendix.

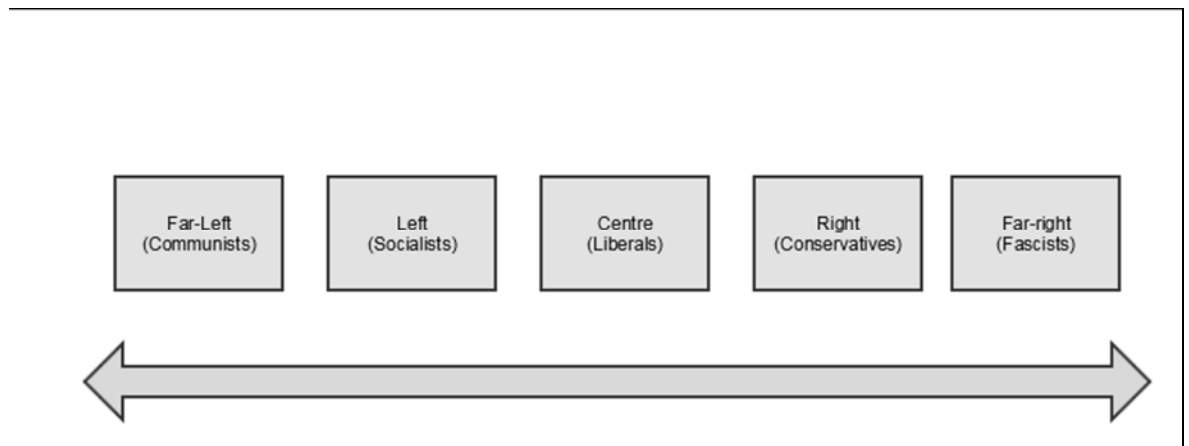
6.3 Liberal social attitudes and authoritarianism

Jost et al. (2009) asserted that those who position themselves on the left/liberal side of the spectrum favour change of the status quo, whilst those who position themselves on the opposite side of the continuum, i.e. the right/conservative side, express a need for social order and conformity, which in turn have been described as typical of authoritarian

personality (Adorno et al., 1950; Altemeyer, 1996; G. D. Wilson, 1973) and social dominance orientation (Sidanius & Pratto, 1999).

Leach et al. (2006), in regard to the British context, gave a schematic representation of the classification of political ideologies, as in Figure 6.1 below.

Figure 6.1 Left-right conventional scale continuum



Note: Authors' elaboration of the scale from Leach et al. (2006, p. 11).

Other authors have reported on the bi-dimensionality of political ideology. For example, Lipset (1960), in his analysis of the relationship between social class and ideology in the post-WWII US, found that disadvantaged social classes are found to be more liberal regarding welfare state and income taxation, whilst more conservative on immigration and out-groups defined by ethnicity, clearly suggesting political ideology as a multi-dimensional construct. Duckitt (2001) showed that a bi-dimensional structure of socio-political attitudes better defines ideological positions; that is, attitudes are organised across two orthogonal conceptual continua: 1) the first represents the socio-cultural dimension of ideology and is made of attitudes regarding sub-dimensions of authoritarianism, social conservatism and traditionalism, the combination of which is labelled as Right-wing Authoritarianism (RWA) (see also Altemeyer, 1996; Duckitt & Bizumic, 2013); 2) the second continuum represents the economic-hierarchical attitudes, which have been largely discussed within the social dominance orientation framework (Sidanius & Pratto, 1999), as

the expression of preference for group relations based on hierarchical—hence unequal—opportunities over economic and social issues of perceived out-groups (Duckitt, 2001).

In the British context the bi-dimensionality of political ideology reported for the US by Lipset and Duckitt undermines the simplicity of the Left-Right representation proposed by Leach et al., as also Evans, Heath & Lalljee (1996) found two major dimensions labelled as, respectively, Left-Right and Libertarian-Authoritarian attitudes, which mirror the dimensional structure proposed by Duckitt.

Whilst acknowledging the various debates on the dimensionality of political ideology (Billig, 1984; G. Evans et al., 1996; Lipset, 1960; Napier & Jost, 2008) in this paper I concentrate specifically on measures of authoritarianism as attitudes to authority. In doing so I consider authoritarianism as related to—but distinct from—conservatism and traditionalism: indeed, the three concepts are seen as all involving “suspicion of change, which may reflect broad satisfaction with the current social, economic and political system, or pessimism over the chances of securing any improvement” (Leach et al., 2006, p. 10); however, authoritarianism is assumed here to be more nuanced across the Left-Right spectrum. Hence, I concentrate on the social connotation of these ideologies in terms of opinions on authority, i.e. in particular on obedience to the law, censorship and the death penalty as representative of the individuals’ views on adherence to forms of social control (Tyler, 2006).

6.4 Defining cognitive ability and its determinants

Cognitive ability indicates the capacity of an individual to deal with high-level cognitive processes, such as problem solving, interpreting events, memory and similar intellectual tasks. The relevance of studies on individual differences in cognitive ability—or intelligence, to use Galton’s original term (Binet & Simon, 1916; Galton, 1869; Spearman, 1904)—has been asserted across disciplinary contexts, as empirical studies have flourished in the need to understand interconnections between the micro—i.e. individual—differences and predispositions, and the macro-level—i.e. situational and contextual factors defining social phenomena. For instance, individuals’ problem-solving ability, verbal ability, social competence, intellectual balance and cognitive style affect and are affected by the social

contexts (Maltby, Day, & Macaskill, 2007; Stenberg, 2000); four main environmental factors have been underscored to affect intelligence: biological variables (such as pre-natal circumstances related to parental drinking, smoking and nutrition), family environment (shared and within-family factors such as type of parent-child interaction and the family's socio-economic status, as well as outside-family factors such as individual interaction with social norms and groups which define the individual's social identity), schooling and education (going to school increases abilities related to the concept of intelligence, just as intelligence is likely to influence the quality of school attended), and the cultural environment people live in, i.e. social norms and values (Neisser et al., 1996).

The Cattell-Horn-Carroll (CHC) model of cognitive ability is the most supported theoretical model of cognitive ability in the literature (Schneider & McGrew, 2012), and describes it as made of three levels: firstly, *g*, or general cognitive ability as the highest level; secondly, nine primary domains: fluid reasoning, comprehension knowledge, short-term memory, long-term storage and retrieval, visual/spatial processing, auditory processing, cognitive processing speed, reading and writing, and quantitative knowledge; finally, at the third level, each primary domain is conceived as being composed of several distinguishable, specific abilities, e.g. the primary reading and writing domain includes writing speed and reading comprehension, among others. Onraet et al.'s (2015) meta-analysis of 82 independent samples showed that the higher the score on the cognitive ability measure used, the more likely people are to express less authoritarian beliefs and to be less prejudiced. Moreover, as per previous literature on political attitudes, the strongest and most persistent predictor of liberalism in adulthood is years of education (or educational level), which in different studies has been used as a proxy for cognitive ability (Van Hiel et al., 2010). Nonetheless, as Sturgis et al. (2010) pointed out, education as a measure of cognitive ability is largely dependent on the socio-economic background of the family which the individual was born to. They argued for the need to use a measure that was less dependent on this socio-economic context, and, like others, chose to consider intelligence measured in childhood for two British birth cohorts, the 1958 and the 1970 cohorts. Onraet et al. (2015) confirmed the suitability of measures of cognitive ability in childhood, as the effect size of cognitive ability (particularly in its dimensions of long-term memory,

comprehension-knowledge and writing/reading) on authoritarianism was stronger when these facets of cognitive ability were measured in adolescence.

6.5 Cognitive ability and other determinants of support for authority in the family environment: hypotheses

Adorno, et al. (1950), theorised that a compound of traits including anti-Semitism, ethnocentrism, political-economic conservatism and antidemocratic beliefs describe a personality type which they call the authoritarian personality. They further propose that this personality is the product of early socialisation experiences, particularly within the family of origin. Moreover, it is in this work that a clear connection between out-group prejudice (and hence social dominance orientation), and intelligence was first made explicit through the statement that “the most ethnocentric are, on the average, less intelligent than the least ethnocentric” (1950, p. 284). More recently, in the explanation of people’s ideology, political science research has focused on the effect of social class and education, and found the latter to behave well in the prediction of support for authority and liberalism (Bynner et al., 2003; Nie et al., 1996; Osborne & Sibley, 2015). Since Lipset’s (1960), and, in a comparative perspective, Almond and Verba’s (1963) works, the social class cleavage in voting and socio-political attitudes has been consistently shown as moderated by educational level, so that the political socialisation literature attributes to education a fundamental role in the definition of knowledgeable and engaged voters (Osborne & Sibley, 2015). Nonetheless, as various researchers (e.g. Deary et al. (2008a), Sturgis et al. (2010) and Onraet et al (2015)) pointed out, the mechanism of the association between education and political preferences should be enriched by the inclusion of cognitive ability as an underlying causal variable; that is, as a factor that precedes both educational level and occupational class in the characterisation of an individual’s ability to evaluate issue positions and take a reasoned stance towards socio-political attitudes—in my case, towards punitiveness and authority versus individual freedom. Moreover, these authors highlighted the suitability of measures of cognitive ability in childhood for the prediction of authoritarianism in adulthood, as this point in an individual’s life course precedes the formative years for the development of political ideology. I also add here that within-family cultural socialisation might have already played a key role in the definition

of both cognitive ability and the level of adherence to societal norms. Hence, my first hypothesis is as follows:

HP1: There is a direct positive effect of cognitive ability in childhood on attitudes to authority in adulthood.

Various studies (Deary et al., 2008a, 2008b; Schoon et al., 2010) showed indeed that cognitive ability in childhood at an age that pre-dates major educational differences in attainment—i.e. around the age of 10—predicts socio-political attitudes, even after controlling for parental background, education and job level in later life: people with higher scores on this measure engage more in the democratic process, and endorse political ideologies of the centre-left, i.e. the social-liberal side of the political ideology continuum (see Figure 1 above). The second hypothesis clarifies the causal mechanism postulated in the present work regarding the relationships amongst cognitive ability in childhood, educational attainment, occupational class and the socio-political attitudes under exam here:

HP2: *Ceteris paribus*, after accounting for parental social class background, the relationship between cognitive ability in childhood and attitudes to authority in adulthood is partially mediated by educational attainment and social class in adulthood.

Finally, as far as we know, very few studies have empirically tested the interconnections amongst the family environment, parents' attitudes, cognitive ability, and socio-political attitudes of the offspring in adulthood. In one of the most complete analyses on intergenerational transmission of attitudes, carried out by Flouri (2004), it was found that in the population represented by the 1970 British Cohort Study (BCS70), mothers' authoritarian child-rearing attitudes predicted support for authority when the CMs were aged 30, after controlling for mothers' values (liberalism and support for working mothers), CMs' general ability and emotional/behavioural problems in childhood, family structure, CMs' physical and psychological health, and partnership status in adulthood. However, the amount of variance explained by her models for support for authority in adulthood was no more than 10%, with a very modest effect of the parents' authoritarian child-rearing attitudes; the larger effects were found mostly for childhood factors,

primarily parental social class and economic disadvantage. As Worthman (2010) stated, following from the work of Super and Harkness (1997), the interacting micro-system of environmental settings and parental habitus (Bourdieu & Passeron, 1977) define the developmental niches the child grows into, hence centring the role played by the household in the child's early emotional, social and behavioural development, including values and socio-political attitudes (Glass et al., 1986; Verba et al., 2005). The same concept of habitus as defined by Bourdieu comprises social capital as competence acquired and actuated in the immediate social context of the family of origin. A recent comparative study by Park and Lau (2016) found that valuing child independence over obedience was prevalent in nations with greater wealth and a higher level of education, and the same was true at the individual level of analysis, as personal socio-economic status is positively associated with a higher likelihood to endorse child independence rather than obedience. Hence, here in the present study I expect parents' socio-economic status to affect, in turn, their own level of authoritarian views on child obedience, as well as their offspring's socio-economic status directly, and indirectly, via the effect exerted on cognitive ability in childhood. Moreover, regarding the socio-economic gradients in child cognitive ability levels and development, many have shown class-based inequalities and even increasing gaps over time (Feinstein & Bynner, 2004; Sindall et al., 2015).

In order to disentangle the effect of parents' attitudes to child obedience on their offspring's attitudes to authority in adulthood, after taking into account the complex mechanism of interaction amongst socio-economic status, attitudes and cognitive ability between the two generations examined here, my third hypothesis, therefore, states:

HP3: Once the socio-economic characteristics of family and offspring, as well as childhood cognitive ability, are taken into account, the direct effect of parents' attitudes on children's later attitudes—i.e. 'vertical' socialisation—will still be observed from parents to their offspring.

Finally, particular attention is paid in the literature to the gender gap in political socialisation (Abendschon, 2013; Corbetta, Tuorto, & Cavazza, 2013) which has been deemed as relevant for gender-based differences in policy preferences, voting behavior and choice. For instance, women report more left-wing party affiliation in Denmark and the

Netherlands, but more right-wing in Spain (Paxton, Kunovich, & Hughes, 2007). Regarding the effect of gender on liberalism, some studies underscore higher authoritarianism for males (Poortman & Van Tilburg, 2005), whereas others attribute higher authoritarianism to females after controlling for societal-level gender inequality (Brandt & Henry, 2012). Regarding political socialization, Abendschon (2013) underscored gender-related social milieu factors due to gender-specific influences during the general socialization process, such as being raised to like different topics and objects and to be more or less caring and attentive depending on the sex of the child. The variety of cultural confounders affecting cross-national differences in gender-specific political socialization and participation rendered mixed and even contradictory findings across studies, hence I decide here to be cautious and to analyse male and female CMs separately; this was also done in some of the previous studies that I closely looked at in this work (Deary et al., 2008b; Schoon et al., 2010).

To summarise, this research sought to test the mechanism of transmission of attitudes to authority as a cultural socialization process, and this would be the first study to look at HP1, HP2 and HP3 simultaneously, taking into account both the direct attitudinal pathway (Jennings & Niemi, 1968), as well as the direct and indirect social milieu pathways (Abendschon, 2013; Glass et al., 1986).

In the next sections I present the methodology applied and the results obtained.

6.6 Methods

6.6.1 Data

The BCS70 is a census of all children born in England, Scotland, Wales and Northern Ireland in a week in April 1970, with a final sample for the first sweep made of 16,135 cases; eight further sweeps of data collection were carried out in the years 1975, 1980, 1986, 1996, 2000, 2004, 2008 and a final one in 2012 when the cohort members were aged 42 (Parsons, Sullivan, & Brown, 2013). I used the BCS70's sweeps in the years 1975, 1980 and 2012 because of the availability of: i) parents' authoritarianism (1975), ii) CMs' cognitive ability (1980), and iii) CMs' attitudes to authority (2012). Attrition and wave non-response resulted in sample sizes for the years 1975, 1980 and 2012 equal to 13,135,

14,875 (as new cohort members were added to the original sample for this sweep) and 9,842 cases, respectively.

6.6.2 Measures

The key outcome variables were responses to the items: 1) “The law should be obeyed even if wrong” (Obey the Law), 2) “For some crimes the death penalty is the most appropriate sentence” (Death Penalty) and 3) “Censorship of films and magazines is necessary to uphold moral standards” (Censorship). The items were all measured through 5-point Likert scales (coded 0 (Strongly Agree) to 4 (Strongly Disagree)), with higher values indicating more liberal views.

Cognitive ability was measured through a modified version of the British Ability Scale (C. D. Elliot et al., 1978), originally formulated by Douglas (1964). My final measure of cognitive ability at age 10, therefore, was the same as in Deary et al. (2008b), with each one of the four dimensions represented by the individual mean score on the respective test, and loading onto a uni-dimensional latent factor.

Parents’ authoritarian stances were measured in 1975 when the CMs were five years old through a set of 13 questions aimed to tap authoritarian child-rearing (Golding, n.d.). I also ran some checks on the construct validity of the original 13-item measure for authoritarian child-rearing by means of 2-parameter normal ogive item response theory (IRT) models for categorical outcomes, and found out that a better measuring instrument was achievable by simply using five of the 13 original indicators proposed by Butler et al (n.d.).

The measure for childhood cognitive ability was used as in Deary et al (2008b). After performing analyses on the validity of this 13-item scale, only five of the original 13 items were retained (see below the justification of this choice). The items retained were: 1) “Children should not be allowed to talk at the meal table” (Talk), 2) “Children under five should always accept what their parents say as being true” (Accept), 3) “If pre-school children would pay more attention to what they are told instead of just having their own ideas they would learn more quickly” (Attention), 4) “A child should not be allowed to talk back to his parents” (Talk Back), 5) “A well brought up child is one who does not have to be told twice to do something” (Told Twice). These five items were then used as indicator

for a uni-dimensional latent factor for parents' authoritarian attitudes, which, due to the items' face validity, was defined as authoritarian attitudes to child obedience. Measures of authoritarianism created through questions on views and beliefs on child-rearing have been validated in different works, in which it was also argued that these types of indicators tap into more subtle opinions on obedience and punishment (Feldman, 2003; Hetherington & Weiler, 2009; H. Park & Lau, 2016; Stenner, 2005).

I measured socio-economic status via occupational social class and highest qualification for both the parents and the CMs. Occupational social class was defined as manual versus non-manual; educational attainment was operationalised for parents as being either below or above Primary Education (NVQ1-equivalent in England), whilst for the CMs I chose the threshold defined by Lower-secondary Education (NVQ2-equivalent in England).

6.6.3 Analytical framework

The need for the assessment of the effect of complex, unobservable characteristics, such as cognitive ability and parents' attitudes on the CMs' attitudes in adulthood, as well as for contemporaneously estimating the same model for males and females, brought me to opt for the flexible features made available by the structural equation modelling (SEM) framework (Kline, 1998; B. O. Muthén & Asparouhov, 2002). The SEM framework, indeed, allows for the simultaneous estimation of a series of equations for the prediction of the outcomes, which in my case are the three items Obey the Law, Censorship, and Death Penalty, in turn considered as three correlated indicators of attitudes to authority. I evaluated the fit of the models using a combination of the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI), where values of RMSEA less than 0.06, or greater than 0.95 for the CFI and TLI were taken to indicate good fit (Hu & Bentler, 1999). I used the software Mplus v7.31 (L. K. Muthén & Muthén, 1998), with estimation of 10 imputed data sets, using a Markov-Chain-Monte Carlo (MCMC) algorithm with 100 iterations, and based on Gibbs sampling (John J McArdle et al., 2009). As a comparison/sensitivity analysis the same models were also estimated on available complete cases, for which results and differences are reported in Appendix to Study 3.

The IRT model applied to assess the latent construct of Attitudes to Child-rearing did not provide a satisfactory fit to the data, with mean RMSEA across the 10 imputed data sets = 0.052, CFI = 0.930, and TLI=0.916. Instead, the measure constructed through the selection of the five indicators which loaded most highly on a single dimension, as well as on the basis of their face validity for the definition of a construct tapping into authoritarian stances on child behaviour, rendered really good model-fit statistics, i.e.: RMSEA (=0.028), CFI (=0.996) and TLI (=0.992). I labelled the parental measure of authoritarianism as Attitudes to Child Obedience.

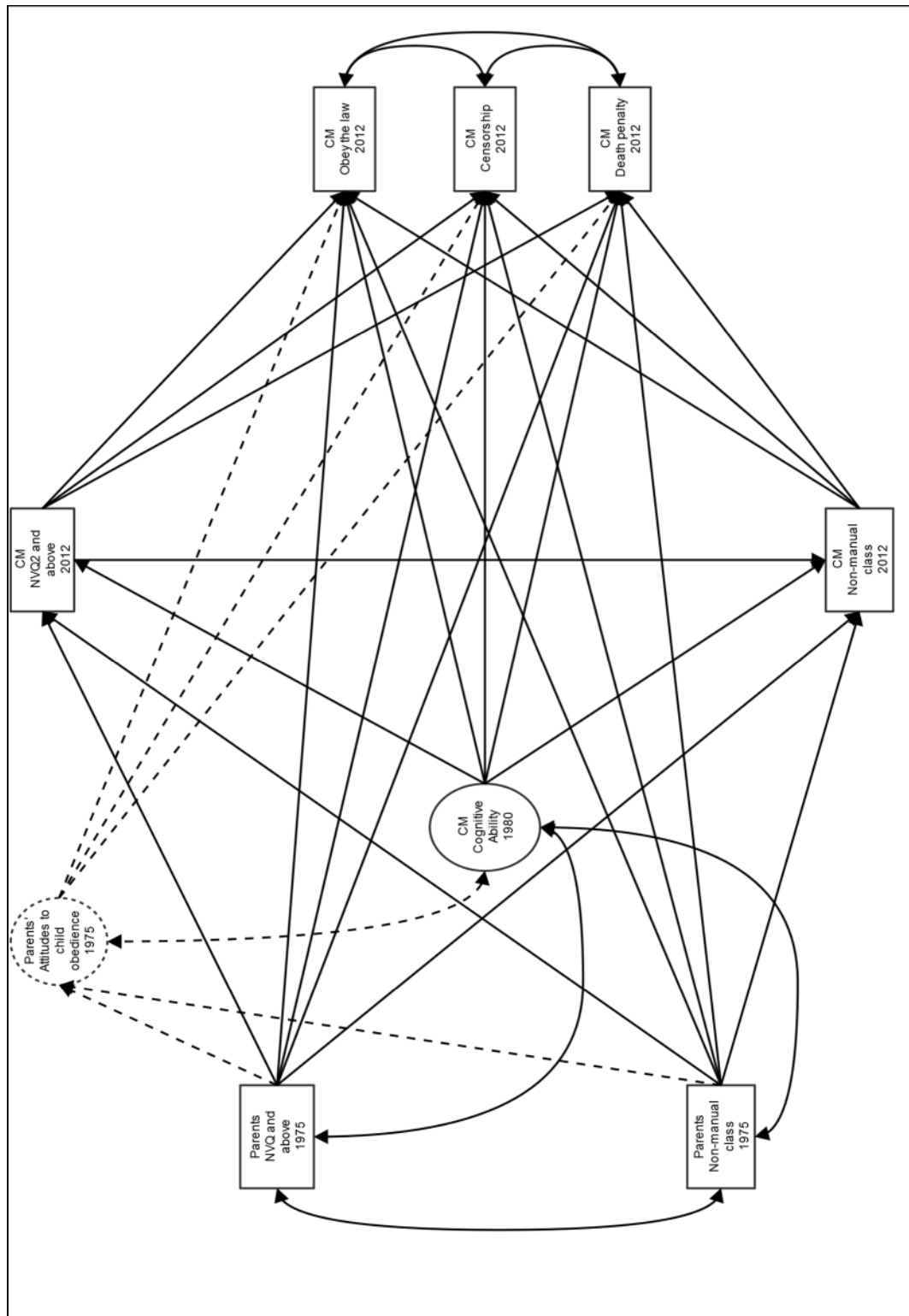
I formulated two theoretical models represented in Figure 6.2. Each model was run in a multi-group SEM framework, with gender as the grouping variable. In this diagram, the two circles denote, respectively, the latent variables for childhood cognitive ability and for parents' attitudes to child obedience. The rectangular boxes represent observed variables. The straight, uni-directional arrows represent regression relationships, whilst the bi-directional represent correlations (Bollen, 1989).

In my models, I considered the estimation of the three outcomes simultaneously—i.e. as correlated—as I assumed that each item represented a different facet of attitudes to authority in adulthood. As shown in Figure 6.2, Model A assesses the effect of childhood cognitive ability at age 10 on the CMS' attitudes to authority in 2012, after controlling for the effect of parents' education and occupation on both the CMs' educational and occupational status, and directly on the three outcomes; Model B adds the latent construct of parents' attitudes to child obedience, which is hypothesised to be correlated to childhood cognitive ability and controlled for parents' socio-economic status. The specification of Model B does not assume a causal relationship between cognitive ability in 1980 and parents' characteristics in 1975—rather, I decided to control for the correlations amongst these constructs in a less deterministic perspective; this choice was driven by the consideration that the key relationships to be assessed are the direct and indirect paths from parental characteristics to the CMs' attitudes in adulthood after controlling for childhood cognitive ability.

Due to wave non-response and attrition (Hawkes & Plewis, 2006; Mostafa & Wiggins, 2015), and in order to assume missingness at random (MAR) (R. J. A. Little & Rubin,

1989), I have applied Multiple Imputation (MI) (Enders & Bandalos, 2001) for the estimation of the statistical models presented here. I run the analysis on both the complete cases, as well as on 10 imputed data sets obtained through MI. The imputation model included the variables used for the final analytical models, which are also some of the key variables that both Mostafa & Wiggins (2015) and Hawkes & Plewis (2006) found as explanatory of missingness in this and also the previous British cohort study, the National Child Development Study 1958 (NCDS), respectively. Moreover, in order to improve the estimation of imputed values, I also included as part of the imputation model two theoretically relevant correlates of missingness specific to the type of outcomes under analysis: political interest (Bynner & Ashford, 1994; Duriez, Van Hiel, & Kossowska, 2005; Koleva, Graham, Iyer, Ditto, & Haidt, 2012) and religion (Altemeyer & Hunsberger, 1992; L. R. Jacobs & Shapiro, 2011; Norris & Inglehart, 2004). Finally, I preferred and opted for MI rather than constructing inverse probability weights for my analysis, as per the superiority of the former method in reducing the bias due to item missingness in the BCS70, as shown by Mostafa & Wiggins (2015). The final analytical models are run on a final imputed data set made of 13,133 valid cases across the three sweeps under analysis in which 6,326 are females and 6,807 are males.

Figure 6.2 Representation of the two theoretical models proposed: Model A (plain arrows), and Model B with parents' attitudes to child obedience (dashed arrows) added to Model A.

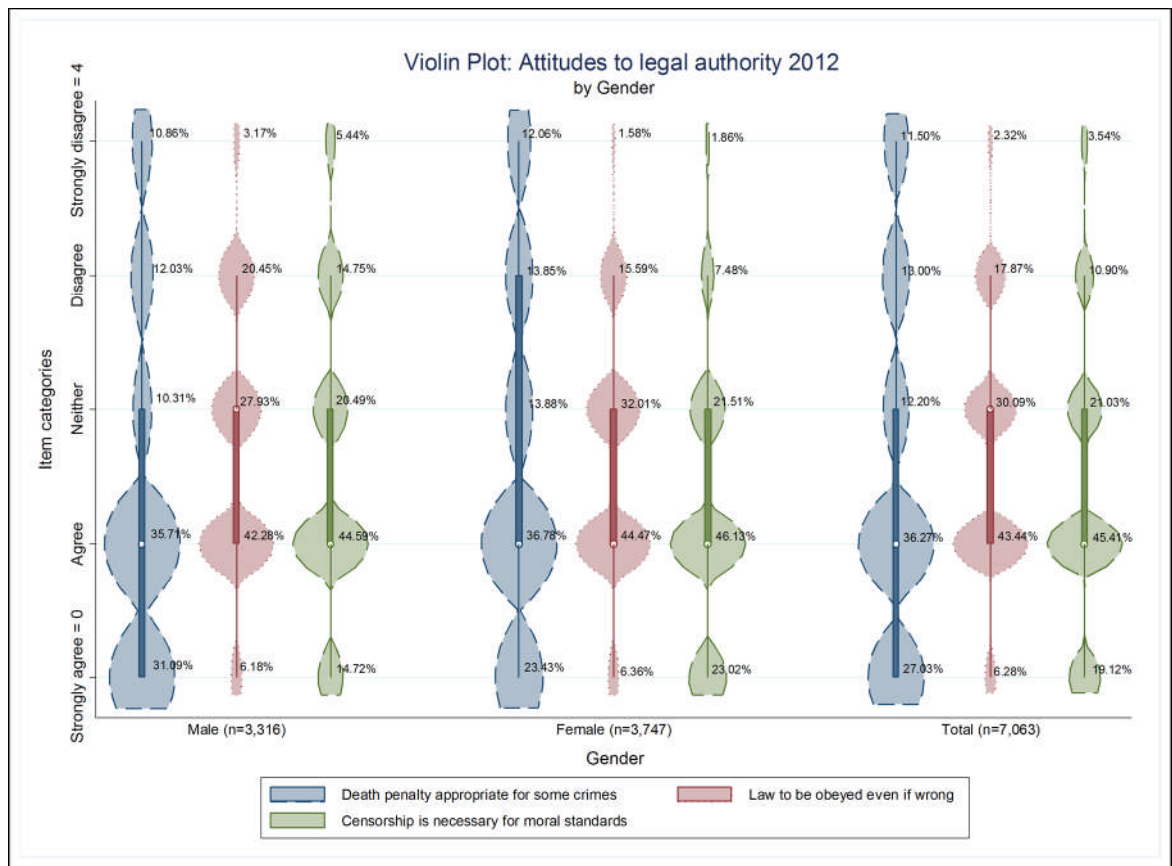


6.7 Results

6.7.1 Descriptive results

Figure 6.3 shows the distribution of responses to the categories of the three outcomes Obey the Law, Censorship and Death Penalty for males, females, and the total sample.

Figure 6.3 Violin plot for the items of Attitudes to authority, British Cohort Study 1970, year 2012



The white rounded marker in Figure 6.3 represents the median of the distribution of each item by gender and for the total sample; the vertical axis shows the item's categories, whilst the ovals corresponding to each category depict the probability density function, computed through a kernel-density estimator (Hintze & Nelson, 1998). The median for Death Penalty and for Censorship is stable at the value 1 (Agree) for both females and males, whilst for Obey the Law it is at the value 2 (Neither Agree nor Disagree) for males, indicating a more uncertain view of the men on this item. Figure 6.3 shows that these items

are positively skewed, and that the sample express quite conservative opinions across the three.

Table 19 shows the polychoric correlation coefficients between each pair of items of the measures of parents' attitudes to child obedience and CMs' attitudes to authority. The values for males are below the main diagonal, and for females are above it. The coefficients reported here show between modest and low correlations, with particularly low correlations between the two sets of the parents' and of the CMs' attitudes. In particular, the item Obey the Law is not significantly correlated to any of the parental measures for the males, while it is only mildly positively correlated with the item Talk Back for the females (0.041). However, this weak unconditional relationship between variables does not necessarily mean that there will be a weak conditional relationship, as other variables may act as 'suppressors' of the relationship.

Table 19 Complete-case polychoric correlations between items measuring parents' attitudes to child obedience in 1975 and items measuring CMs' attitudes to authority in 2012. Values for males and females respectively below and above the main diagonal

	Talk	Accept	Attention	Talk back	Told twice	Death penalty	Obey the law	Censorship
Talk	1	0.308	0.283	0.349	0.318	0.120	0.018	0.055
Accept	0.303	1	0.319	0.337	0.320	0.073	0.024	0.077
Attention	0.282	0.359	1	0.319	0.365	0.114	-0.004	0.022
Talk back	0.339	0.367	0.333	1	0.360	0.081	0.041	0.041
Told twice	0.302	0.308	0.348	0.363	1	0.042	0.015	0.034
Death penalty	0.126	0.100	0.087	0.053	0.059	1	0.039	0.175
Obey the law	-0.02	-0.002	0.020	-0.005	0.010	0.075	1	0.114
Censorship	0.081	0.071	0.079	0.023	0.062	0.190	0.197	1

Note: Coefficients in bold are significant at the 95% confidence level

The CMs' outcome that correlates the most with parental indicators of attitudes to child obedience is Death Penalty, with a maximum coefficient of 0.126 for males and 0.120 for females, whereas Obey the Law appears to be significantly associated only with parental opinion Talk Back for females, with a coefficient of 0.041.

6.7.2 Modelling results

As shown in Table 20, both the theoretical models presented in Figure 2 fit the data well, with Model A's RMSEA = 0.034, CFI = 0.983, and TLI = 0.964, and Model B's RMSEA = 0.030, CFI = 0.974, and TLI = 0.965. In relation to the three outcomes' variances explained by the two models, the Death Penalty item was the best predicted, at around 12%, compared to the other two at around 3% or lower. The addition of parental attitudes in Model B had a very small influence, improving the R-square by less than 1% for any outcome.

Table 20 R-squared values and standard errors (S.E., in brackets) for Model A, and Model B. Multiple-imputed data sets

	Model A		Model B	
	Males	Females	Males	Females
Obey the Law	0.009 (0.004)	0.005 (0.003)	0.009 (0.004)	0.006 (0.003)
Censorship	0.032 (0.007)	0.015 (0.007)	0.036 (0.008)	0.018 (0.007)
Death Penalty	0.124 (0.012)	0.122 (0.012)	0.125 (0.012)	0.123 (0.013)
Model Fit				
RMSEA	0.034		0.030	
CFI	0.983		0.974	
TLI	0.964		0.965	

The models' estimated path coefficients are presented in Table 21 below.

Table 21 Estimated coefficient for the paths in Model A and Model B for males and females, imputed data sets. N=13,133 cases

Outcomes and predictors	Model A		Model B	
	Males	Females	Males	Females
Part 1: Key outcomes and predictors				
Obey the Law				
Cognitive ability 1980	0.093 (0.029)	0.059 (0.028)	0.094 (0.031)	0.055 (0.030)
Occupational social class	-0.067 (0.026)	-0.057 (0.029)	-0.067 (0.026)	-0.057 (0.029)
Qualification	-0.004 (0.035)	0.018 (0.031)	-0.005 (0.035)	0.017 (0.032)
Parents' highest qualification	-0.004 (0.015)	-0.010 (0.020)	-0.005 (0.016)	-0.013 (0.020)
Parents' occupational social class	-0.020 (0.018)	-0.016 (0.021)	-0.020 (0.018)	-0.017 (0.018)
Parents' attitude to child obedience			-0.003 (0.024)	0.018 (0.023)
Censorship				
Cognitive ability 1980	0.188 (0.028)	0.126 (0.031)	0.170 (0.029)	0.110 (0.032)
Occupational social class	0.039 (0.025)	0.025 (0.024)	0.038 (0.025)	0.024 (0.024)
Qualification	-0.062 (0.027)	-0.084 (0.029)	-0.062 (0.027)	-0.086 (0.029)
Parents' highest qualification	-0.003 (0.018)	-0.030 (0.020)	-0.014 (0.019)	-0.040 (0.020)
Parents' occupational social class	-0.032 (0.021)	-0.013 (0.018)	-0.037 (0.021)	-0.017 (0.018)
Parents' attitude to child obedience			0.067 (0.022)	0.063 (0.022)
Death Penalty				
Cognitive ability 1980	0.177 (0.034)	0.223 (0.027)	0.167 (0.034)	0.215 (0.028)
Occupational social class	0.175 (0.024)	0.103 (0.023)	0.175 (0.024)	0.102 (0.024)
Qualification	0.038 (0.031)	0.057 (0.034)	0.038 (0.031)	0.053 (0.035)
Parents' highest qualification	0.047 (0.022)	0.044 (0.019)	0.041 (0.023)	0.038 (0.020)
Parents' occupational social class	0.032 (0.021)	0.038 (0.016)	0.029 (0.021)	0.035 (0.016)
Parents' attitude to child obedience			0.037 (0.020)	0.035 (0.026)
Part 2: Predictors of Parents' attitude to child obedience				
Parents' highest qualification			0.227 (0.015)	0.239 (0.016)
Parents' occupational social class			0.148 (0.017)	0.147 (0.016)

Looking at Table 21 it can be seen that for Model A the key predictor for the three outcomes and for both genders is childhood cognitive ability, where the higher the score, the more liberal the CMs' view on the specific topic. However, once Parents' attitudes to child obedience is introduced in Model B, cognitive ability does not significantly predict more liberal views on Obey the Law for females, whilst its effect only slightly diminishes across both sexes for the items Censorship and Death Penalty. A further common predictor for both males and females' liberalism on Censorship is educational qualification, with surprisingly negative coefficients, that is, less liberal views on this topic are expressed by those with secondary and above educational levels. Censorship is also the only item for which Parents' attitudes to child obedience exerts a significant and positive effect, for both genders in Model B. Regarding opinions on capital punishment, apart from cognitive ability, the other significant effect is from occupational social class; i.e. being in a non-manual profession defines more liberal views on Death Penalty in both theoretical models. Interestingly for this item, the parents' highest qualification positively predicts more liberal stances of the CMs on this issue in Model A, however its effect disappears when in Model B I control for parents' attitudes to child obedience, despite the non-significant path coefficients recorded for this predictor. Consistently with the literature on associations between authoritarianism, education and social class, less authoritarian stances for the parents' attitudes to child obedience in 1975 are strongly and significantly associated with their qualification and occupation, as shown in Part 2 of Table 21.

Regarding gender differences in the final Model B, for the males, being in a non-manual occupation is negatively associated with a liberal stance on Obey the Law, whilst none of the variables chosen significantly predicts Obey the Law for females. On Censorship, for females only I found that the parents' highest qualification has a negative effect on this item, in line with the negative coefficients found for the effect of CMs' educational level. More liberal views on the death penalty are positively associated with parents' occupational class only for females.

Parents' attitudes in 1975 are moderately correlated with CMs' cognitive ability in 1980 for both genders and both for the complete-cases analysis and for the multiply-imputed data set, as shown in Table 23, Part 4 in Appendix to Study 3, for which the correlation coefficients for males in the multiple-imputed data set are equal to 0.227 (S.E. = 0.017),

and for females to 0.238 (S.E. = 0.017). Moreover, as reported in this same table, cognitive ability is also significantly and positively correlated with the parents' highest qualification, with coefficients for males equal to 0.348 (S.E. = 0.013) and for females to 0.357 (S.E. = 0.013), as well with the parents' occupational class, where the coefficients for males and females are, respectively, 0.363 (S.E. = 0.013) and 0.356 (S.E. = 0.015).

Finally, the comparison between the results between complete-case analysis and MI for my final model B underscores the R-squared value for Obey the Law for males is significant only for the MI analysis (see the comparison of Table 20 with Table 22 in Appendix to Study 3); Table 23 in Appendix reports the comparison of the estimates obtained for the two theoretical models for males and females for complete-case and MI analyses: regarding Model B, in particular, we see that the significance and sign of the path coefficients for Obey the Law are largely comparable across the two types of analysis. Occupational class was a statistically significant predictor of Censorship in the complete-case analysis for males, but it is not in the MI framework. Regarding this same outcome, having a secondary-level education and above was not significant in the complete-case analysis for males, whilst for this population the opposite is true for parents' occupational class. For the item Death Penalty, CMs' occupational class is found significant for females only in the MI analysis, while the opposite is true for educational level; the parents' occupational class coefficients suggest mixed and unreliable conclusions to be made regarding its effect on the prediction of opinions on Death Penalty as these become non-significant for males and significant for females in the MI analysis.

6.8 Discussion and conclusions

In this paper I have assessed two major competing hypotheses: 1) whether social milieu pathways inclusive of childhood cognitive ability predict attitudes to authority in adulthood; versus 2) after controlling for this, the direct effect of parents' authoritarian attitudes, as measured by Attitudes to Child Obedience during the CMs' childhood, on the same attitudes to authority in adulthood. I have done this by running separate models for males and females, as suggested by the literature (Deary et al., 2008b; Schoon et al., 2010).

The mechanism of intergenerational transmission of attitudes to authority tested here is that parents' socio-economic milieu affects their level of authoritarianism as measured by their attitudes towards child obedience, as well as their children's chances of interactions within social contexts that promote the development of cognitive abilities related to the affirmation of themselves as open-minded, independent adults oriented towards critical appraisal of society and of its apparatus. Hence, I expected to find correspondence between parents' authoritarian views on child obedience and their offspring's attitudes to authority in adulthood. What I found is that the direct effect of parents' authoritarianism only remains in reference to the prediction of opinions on censorship as a necessary measure to uphold moral standards; as Jost & Sidanius (2004) stated, censorship may reflect submission to moral authority, rather than more specifically to authority, in which case I speculate that parents' views on child obedience are more within the realm of socially acceptable, moral norms guiding behaviour, rather than about sanctions and punishment, hence closer to what their offspring, once adults, would feel and think about potentially offensive, discriminatory and non-conventional discourses and behaviours.

Educational level, in particular, has been deemed across many studies as a reliable predictor of liberal worldviews, and in particular of lower support for authority (Bynner et al., 2003); nonetheless, my findings suggest a more cautious conclusion on the effect of this factor on attitudes to authority as I defined them: indeed, when authority is measured for parents under the concept of views on child obedience, and their education and occupation are taken into account, I found a significant effect of the two characteristics on their level of liberalism. On the other hand, when I looked at their offspring's attitudes to authority in adulthood, I found either a null effect, regarding obedience to the law even if wrong and the reintroduction of capital punishment, or weak negative relationships for opinion on the need of censorship to uphold moral standards. Parents' educational qualification also showed the same patterns when I looked at its direct effect on their offspring's attitudes in adulthood, with only a significant but negative association with opinions on censorship for female CMs. For Obey the Law I also found an unexpected negative effect of occupational social class for males; however, these negative coefficients indicate small-size effect, which seems to be captured largely by cognitive ability in childhood. *Ceteris paribus*, the direct effect of occupational class is a particularly relevant

predictor of opinions on the death penalty, for both males and females, so that individuals in non-manual occupations are more likely to state their disagreement with the reintroduction of capital punishment. Being in a non-manual occupation could arguably be seen as implying a day-to-day-basis interaction with abstract thinking, in particular for high-status professional settings, which, combined with cognitive ability and the educational pathways necessary to do a non-manual job, may affect the perception of threats and of the need of such an authoritative, strict, and irreversible sanction.

The most consistent effect on liberal stances on the three items is given, instead, by the measure of cognitive ability in childhood. I found that cognitive ability remains the strongest predictor of opinions on censorship for both males and females. However, for the item Obey the Law I found that cognitive ability did not have any significant effect for females once parents' attitudes were taken into account. The effect of cognitive ability on this outcome was generally low across the two populations, even before taking parents' attitudes to child obedience into account. I believe that this item, although interesting, is perhaps ambiguous in its formulation, with scarce discriminatory power, as well as potentially prone to social desirability bias.

6.8.1 Strengths and limitations

The strengths of this paper are in the type of data used, as the BCS70 allows me to assess intergenerational transmission of individual-level characteristics over a long time span, i.e. in my case, over around 30 years, as well as to observe how the same factors affect the two generations of the parents and of their children in adult age. Moreover, I also accounted for the loss of observations over time by applying multiple imputation, hence allowing the assumption of MAR for the missing cases, which is less restrictive than the MCAR assumption on which complete cases analysis is based. In terms of statistical power, the large sample allows me to assert the non-relevance of this issue for my study, hence to consider the null effect of parents' attitudes on their offspring's attitudes in adulthood as supported by my data.

Limitations of this paper are to be found in the self-reported measures of attitudes for both parents' and their offspring, as well as in the lack of statistical testing for the measure of

CMs' attitudes to authority, although this was not made possible due to the scarce number of items in the 2012 sweep of the BCS70, which would render a non-testable, just-identified model. The explanatory power of my models for the items Censorship and Obey the Law is generally low, whilst it is satisfactory for the item-measuring views on the reintroduction of capital punishment for certain crimes.

6.8.2 Conclusions and further research

In conclusion, after controlling for the effect of parents' socio-economic background, as well as their attitudes to child obedience as a measure of their authoritarianism, childhood cognitive ability remains the most robust predictor of attitudes to authority in adulthood. For both males and females, CMs' opinion on censorship is the only facet of attitudes to authority examined here on which parents' attitudes to child obedience exert a significant effect, after the socio-economic circumstances of both generations are taken into account, confirming, partially, my hypothesis on the mechanism on vertical intergenerational transmission and congruence of attitudes from parents to children (Flouri, 2004; Jennings & Niemi, 1968; Miller & Glass, 1989). This may indicate a stronger effect of primary socialisation for this item, tapping specifically into moral control and behavioural standards.

Further research is suggested to improve my understanding of the meaning that agreement on capital punishment still has, in a country that formally abolished this strong social and individual punishment measure in 1998 (the last execution happened in 1964), as well as on the effect of parents' attitudes to child obedience on the degree of approval for such a measure in their offspring. The relationship amongst the three outcomes, as well, should be looked at into greater detail, together with the differential effects of background variables and cognitive ability. I would also suggest replicating the analysis in different social contexts and timeframes.

7 The Intergenerational transmission of attitudes to authority from parents to children: discussion and conclusions

7.1 *Introduction*

This chapter summarises the main features of the work presented here, with further discussion on the key theoretical points, research questions and findings.

A brief overview of the aims of the research is given, followed by a discussion of the results obtained in each study; the contribution to research/knowledge on intergenerational transmission of attitudes to authority from parents to children is presented, followed by a report on the limitations of this work. Then, future directions in which to develop knowledge on socio-political socialisation and transmission are suggested, followed by a discussion of the social impact of the findings presented here. The chapter closes with a brief outline of the main conclusions.

7.2 *Revisiting aims and hypotheses*

This work examined a specific set of socio-political attitudes, i.e., attitudes to authority, in the British population represented by those born in a week in April in 1970, with the aim of addressing three main research themes: (i) whether these attitudes change over time in adulthood, from the age of 26 to the age of 42; (ii) the intergenerational transmission of these attitudes from parents to their offspring when adults; and (iii) whether the mechanism of intergenerational transmission is still present once the offspring's cognitive ability is taken into account. The hypotheses were that, once adulthood is reached:

- 1) After accounting for theoretically relevant covariates such as gender, occupational social class, education, religion and interest in politics, individuals' views on the key outcomes measuring degrees of acceptance to the law, of censorship, of the reintroduction of capital punishment and the stiffening of sentences remain stable
- 2) Parents' attitudes to child obedience, used as a measure of their authoritarianism, is a significant predictor of their offspring's attitudes to authority in adulthood

3) Even after controlling for the cohort members' cognitive ability in childhood, the transmission of orientation towards authority is still detectable in terms of opinions towards censorship.

7.3 Summary of results

The work was organised into three studies each testing one of hypotheses listed in the previous section. Thus, Study 1 aimed to assess whether attitudes to authority change during a timespan that goes from young to middle adulthood, and it did so by analysing individual rather than at the aggregate-level change, population level. Study 2 examined the intergenerational transmission mechanism of attitudes related to support for authority within the family, and Study 3's purpose was to shed light on the mechanism of cultural transmission of attitudes to authority from parents to children, once individual differences in cognitive ability amongst the CMs in childhood are taken into account.

Within the general research problem central to this work—that is, the intergenerational transmission of socio-political attitudes from parents to their offspring—assessing change or stability of attitudes was seen as a key point to investigate before advancing the analysis to the actual mechanism of transmission. The reason is simple: if attitudes to authority significantly change over the life course, the logical consequence of this is that the degree of congruence between parents' and offspring's attitudes would be affected by the specific point in time during which the attitude object is measured. Hence, Study 1 set the basis for the other two studies.

The data set used throughout this work, the BCS70, allowed such a type of analysis given the availability of repeated measures of what I have used as indicators of attitudes to authority, as it is based on a pure longitudinal survey design (T. D. Little, 2013; Lynn, 2009). In particular, this data set is a single-cohort longitudinal design, where consistent pieces of information are collected on the same group of individuals over time. The main common characteristic of the participants in the BCS70—the CMs—is that they were all born in the same period (a particular week in April 1970) and in a geographically defined area (Britain), hence allowing the basic assumption that these people share the same

experience of the same historical events that characterised societal events and change (Plewis et al., 2004).

Hence, by using this type of data, the assessment of change in attitudes to authority in adulthood is mostly centred in life-course, age-related change. In this way, the focus of the analysis is on the “fluid variability over time” (T. D. Little, 2013, p. 40) in individual trends, rather than on static snapshots as those given by other types of survey designs such as repeated cross-sections and even more traditional panel designs.

Study 1 aimed for a contribution to the literature on attitude change at the individual level, and in order to do so in a robust way it was based on methods that assess both the quality of the measure of attitudes to authority, as well as whether and how differences in the trajectories of change for these attitudes are significant across individuals, i.e. LGCM in a SEM framework (Bollen & Curran, 2006; J J McArdle & Nesselroade, 2014).

Study 1 answered three research questions, as reported below; the findings are discussed in relation to each research question (RQ).

RQ1. Are attitudes to authority definable as a unidimensional, coherent construct across time?

The findings on the conceptual structure of attitudes to authority are bound to the operationalisation given in this work for this construct, and specifically to the data available in the BCS70. Since the 70s or so, large-scale, quantitative survey research has operationalised the concept of authoritarianism, support for authority and law and order by consistently using a set of questionnaire items. Hence, standardised questions on people’s unconditional adherence to the law, support for censorship and for stronger punishment, in particular, have been used in the literature to measure the underlying, latent trait of support for authority and social conservatism (Altemeyer, 1996; Duckitt & Bizumic, 2013; Heath et al., 1994, 1991; Rokeach, 1968).

Four items in particular were available in the BCS70 for the sweeps in 1996 and 2000, and three of them were asked again to the CMs in 2012 (opinions on Stiffer Sentences were not asked for in 2012). Initially I had assumed the items Obey the Law, Censorship, Death

penalty and Stiffer Sentences to be manifest indicators of a unidimensional latent construct—namely, attitudes to authority.

I first assessed the latent dimensionality of the four items via IRT models (Lord, 1965; Moustaki et al., 2004) which assume the existence of one continuous latent variable as the cause of the observed patterns of response to the four (or three in 2012) items. Due to the fact that only three of the four indicators of attitudes to authority are available for the three time points, only two types of latent structure were tested: a unidimensional latent variable, and a single-item approach, the latter considering the possibility that each item reflected a separate, although related, facet of attitudes to authority. The unidimensional IRT model was applied separately for each sweep of data, in a cross-sectional perspective.

I found very little evidence that the four items in 1996 and 2000, and the remaining three items in 2012 are facets of a unidimensional latent construct. Rather, the results suggested to proceed by considering each item as a separate—although correlated to the others—measure of attitudes to authority. Indeed, the items, as indicators of a single unobservable construct lack of homogeneity over time—i.e. despite moderate within-wave homogeneity—did not display unidimensionality over time; these constructs change differently over time. Indeed the modelling choice to assess individual-level change over time was made of four parallel growth processes, where each item represented specific measures of issue-based attitudes to authority (Duckitt & Sibley, 2010; Jost et al., 2009).

The second research question for Study 1 concerned the assessment of change in attitudes to authority from the age of 26 to the age of 42 in the sample made of the BCS70 CMs, and is stated as follows:

RQ2. Do attitudes towards authority change over time in a life course perspective?
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The objective was to model the patterns of change/stability in the data both in terms of mean trends over time, as well as in terms of individual-level differences around the mean trend, across the three time points. The type of data and models used in this study aim to contribute to the literature on attitude change over the life course, especially between early and late adulthood, as very few studies have looked at it by using repeated-measure research designs. Indeed, socio-political attitude change has been largely analysed through

repeated-cross-section types of studies, which in the majority confirm the aggregate trends towards more liberal stances on topics such as gender equality, racism, homophobia, and authoritarianism, mostly as a function of socio-economic development (Inglehart & Welzel, 2005; A. Park & Surridge, 2003; M. Phillips & Simpson, 2014). At the individual level of analysis, with results coming from a panel-design type of data, stability and strengthening of socio-political attitudes from early to late adulthood have been asserted in various studies on the US and British electorate (G. A. Evans & Heath, 1995; Stoker & Jennings, 2008; Sturgis, 2002).

The analysis proposed here confirmed the hypothesis of stability of attitudes to authority in adulthood for the population under investigation, at the individual level—that is, I found intra-individual stability, as for the majority of the participants, attitudes remained relatively stable over time. These points support the hypothesis of attitudes as relatively stable traits over the life course (Banaji & Heiphetz, 2010; Stoker & Jennings, 2008).

At the aggregate level, the mean linear trajectories of change for the items move towards increasing liberal views of the CMs regarding obedience to the law, death penalty and stiffer sentencing, whilst they become more conservative on censorship control issues. This finding of higher conservatism on censorship issues has been hypothesised to be related perhaps to the advent of the internet and the exponential expansion of sources and types of information at the global level, from a period-effect perspective (Banks et al., 1992; Wiggins & Bynner, 1993; Wiggins et al., 1997); or, perhaps it could be due to concerns related to parenthood, hence a developmental or age-related type of phenomenon (Bucx et al., 2010).

The largest change was observed for the item tapping into views on capital punishment, for which the largest change towards more liberal stances happens from the age of 30 to the age of 42, whilst moving towards lower liberalism from the age of 26 to 30.

The third research question in Study 1 aimed to characterise the findings on attitude change/stability in relation to those major socio-economic factors found in the literature as relevant individual-level covariates of socio-political conservatism and authoritarianism, namely occupational social class and educational level (Jost et al., 2004; Lipset, 1960; de

Regt et al., 2012), religiosity (L. R. Jacobs & Shapiro, 2011; Putnam & Campbell, 2010), political involvement and interest (Singh & Dunn, 2015), and gender (Bynner & Ashford, 1994; Pratto et al., 1997). Hence, the research question was formulated as follows:

RQ3. How are socio-economic characteristics related to attitudes to authority over time?

The results on change over time for the four items, at both the individual and aggregate-mean level, are confirmed even after the introduction of predictors of attitudes across time.

In the conditional model I introduced gender, level of education, occupational class, religiosity and interest in politics as time-invariant predictors of the four parallel growth processes. The sweep chosen for the measures of socio-economic characteristics was 2012, because once the unconditional LGCM assessed non-significant individual-level change over time, the use of, for instance, education as a time-varying characteristic would have excessively complicated the model and its interpretation, with the inclusion of potentially non-relevant parameters having to be estimated.

In this work, I found that females are more liberal regarding capital punishment, but at the same time are more conservative regarding censorship and sentencing, whilst their view on censorship becomes more liberal with age. Highly educated people are also more authoritarian on censorship issues, whilst on average they become over time more liberal on capital punishment and sentencing; CMs in non-manual occupation become on average more authoritarian in terms of adherence to the law, whilst more liberal about the other issues.

Interestingly, the higher the interest in politics, the less on average people change their views (in terms of more or less authoritarian stances, not conversion), which confirms what previous research has found on the effect of socio-political involvement—and knowledge—at a young age on the stability of opinions and attitudes, as well as on the actual strengthening of those already acquired (Jennings & Stoker, 2006; Stoker & Jennings, 2008).

Finally, declaring to be religious defines initial lower levels of liberalism across the four facets of attitudes to authority (Altemeyer & Hunsberger, 1992; Clements, 2014; Norris &

Inglehart, 2004); however, the interesting finding is that the religious are those whose views become more liberal over time on average.

As Study 1 showed non-significant intra-individual change from the age of 26 to the age of 42 on opinions towards adherence to the law, censorship, and the death penalty (whilst for opinions on stiffer sentences this could not be assessed as only two measurement occasions are available in the BCS70), I selected CMs' attitudes to authority items available in the 2012 sweep as the outcome of Study 2. Moreover, another reason to prefer this final sweep to the ones in 1996 and 2000 was the assumption that by this age the CMs would have on average been at the same life stage as their parents were in 1975, with relatively stable life circumstances.

Study 2 involved the assessment of the effect of certain parental attitudes on their offspring's attitudes to authority in adulthood, hence the focus is on the parents-to-offspring cultural socialisation mechanism (Abendschon, 2013; Hyman, 1959; Langton, 1969).

The measure of parental level of authoritarianism chosen to evaluate attitude congruence was a latent construct derived from items previously used to define a scale of authoritarian child-rearing in the BCS70 (Flouri, 2004; Golding, n.d.); I have labelled this new measure as 'Parents' Attitudes to Child Obedience'. The use of items tapping into conservative and authoritarian stances on child-rearing in order to capture the more general attitude towards social control versus individual freedom and determination has been advocated as valid by many (Feldman, 2003; H. Park & Lau, 2016).

The research question examined in Study 2 was formulated as follows:

RQ4. Can a mechanism of intergenerational transmission of socio-political attitudes be identified?
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The selected measure of attitudes to child obedience for the parents in 1975 was made of five indicators, and tapped specifically into the expected children's behaviour towards the parents, with items such as "Children should not be allowed to talk at the meal table"

(Talk), “Children under five should always accept what their parents say as being true” (Accept), measured on a 5-point Likert-type scale and coded towards higher liberalism.

Hence, within the latent variable measurement framework (Bollen, 2002; B. O. Muthén, 1983), the assumption made in Study 2 is that of conceptual correspondence between parents’ attitudes to child obedience, as measured in 1975 amongst the CMS’ parents, and the items measuring attitudes to authority amongst the CMs in 2012.

Three nested SEM models were applied, starting from the baseline having the CMs’ gender, education, occupation, religion and interest in politics as direct predictors of the CMs. A second model added direct paths from the parents’ socio-economic background in 1975 to the CMs’ socio-economic characteristics in 2012, as well as to the CMs’ attitudes; moreover, in this second model the CMs’ socio-economic characteristics are considered as mediators of the relationship between family background as measured in 1975 and opinions to authority in 2012. This second model tries to account for the imperfect empathy mechanism, or the indirect transmission of cultural traits within the family as based on socio-economic determinants (Bisin & Verdier, 2011), also defined as social milieu factors (Abendschon, 2013), and the developmental niche hypothesis (Super & Harkness, 1997). The third model adds to the previous measure of parents’ attitudes to child obedience as both a direct predictor of the CMs’ attitudes to authority in 2012, as well as a partial mediator, together with the CMs’ socio-demographic characteristics, of the effect of parents’ background on their offspring’s attitudes. The third model adds to the hypothesis of cultural transmission the test of the hypothesis of direct attitudinal pathways (Jennings & Niemi, 1968).

From the original set of 13 5-point Likert-type items attributed to a latent measure of parental attitudes to authoritarian child-rearing (Golding, n.d.), I found that this original broad scale did not have robust psychometric properties; instead, the most homogenous part was made of the 5-items relating to child obedience. This final, reduced scale, defined as parents’ attitudes to child obedience, denotes authoritarianism in terms of views on the child as not simply obedient, but rather as submissive to the parents’ authority, with little say on the parents’ role; for instance, the measure is made of items such as “Children under five should always accept what their parents say as being true” and “If pre-school children

would pay more attention to what they are told instead of just having their own ideas they would learn more quickly”, which clearly, when endorsed with agreement, denote the parents’ expectation that the child does what she/he is told, in a passive manner. This fits with Feldman’s (2003) ideas about the value of obedience in childhood as the path to social conformity in adulthood, as well as with Kohn and Schooler’s (1983) emphasis on childrearing values in the characterisation of individuals’ more general worldviews on respect for authority and on the compromise between self-direction and social conformity.

In Study 2 the mechanism of intergenerational transmission from parents to children was conceptualised as the congruence between parents’ authoritarianism, which was measured by their attitudes to child obedience, and their offspring’s attitudes to authority, measured by correlated issue-based opinions on censorship, capital punishment and obedience to the law even if wrong,.

I found that while direct intergenerational transmission from parents to children seems to happen for measures of reintroduction of capital punishment primarily, followed by acceptance of censorship, parents’ attitudes are not significant predictors of their offspring’s obedience to the law. Considering the long time span, involving myriads of individual-level and social level events from 1975 to 2012, I retain these findings as relevant.

The direct and relatively strong association between attitudes to child obedience in 1975 and liberal stances on the death penalty in 2012—even after controlling for parents’ background effects on both their offspring’s socio-economic characteristics as well as on their attitudes—may be explained by the argument that capital punishment refers to the individual’s view on severe punishment and high-level social control and authority, or, as in Weber’s (M. Weber, 1954) words, on the state as the monopolist of the legitimate use of physical force. Hence, I argue here that opinion on capital punishment in the study presented here constitutes a good indicator of liberalism/authoritarianism.

The more complicated mechanism of intergenerational transmission hypothesised in this work took into account the interconnections amongst individual-level factors pertaining mostly to social stratification variables, the level of education, occupational class and

religiosity for both the parents and the CMs, whilst age was controlled for in the parents only and gender in the CMs only, as well as level of interest in politics for the CMs.

Regarding direct effects of parental background on the three measures of attitudes to authority in adulthood, only the age of the parent seemed to exert a significant effect, with having older parents defining higher liberalism across the three outcomes.

Another relevant finding from Study 2 is that, after controlling for the association between parents' and their children's socio-economic background in adulthood, and the effect of parents' attitude to child obedience on the CMs attitudes in 2012, being female, with a higher educational level and occupational class, as well as with a higher interest in politics, remain significant predictors of opinions on the death penalty; liberal stances on censorship are predicted by occupational class, being non-religious and male. Regarding opinion on adherence to the law, being female and religious define more authoritarian stances on this topic.

The correspondence amongst parents' socio-economic characteristics and their offspring's, and how the social structure defined by these characterises both generations' support for authoritarian stances allows us to consider the validity of a theoretical framework that integrates the developmental hypothesis (Erikson, 1950), and specifically the developmental niche hypothesis (Bronfenbrenner, 1979; Glass et al., 1986; Verba et al., 2005), and its variant in the economic literature, namely 'imperfect empathy' (Bisin & Verdier, 2011).

Study 3's purpose was to shed light on the mechanism of cultural transmission of attitudes to authority from parents to children, once individual differences in cognitive ability amongst the CMs in childhood are controlled for.

The interest in cognitive ability as a relevant predictor of socio-political ideology, attitudes and civic participation stems from the robust findings on the positive association of these with social class (Almond & Verba, 1963; Lipset, 1960), and in particular with level of education (Hauser, 2000; Osborne & Sibley, 2015; Preston & Feinstein, 2004).

Cognitive ability has been highlighted as a key explanatory variable of both liberalism, directly, and through its association with social class (Deary et al., 2008a; Flouri, 2004; Onraet et al., 2015). In particular, cognitive ability measured in childhood, especially at an age that precedes the formative years for the development of political ideology, was suggested as being a reliable indicator of people's predisposition for abstract, critical thinking, which is hypothesised to affect openness and adaptability to social change and experiences, as opposed to an adherence to the status quo (Mood, Jonsson, & Bihagen, 2012; H. Park & Lau, 2016; Šerek & Macek, 2014; Tetlock, 1983), and its reproductive norms.

A further key topic in the literature on political socialisation is defined by findings and theories on the gender gap in political participation (Abendschon, 2013; Corbetta et al., 2013; Paxton et al., 2007), hypothesised to derive from gender-related social milieu factors in the general socialisation process, where girls and boys are raised to like different topics and objects, and to gender-specific ways in which to deal with the particular topic of this work—obedience and authority.

The SEM models applied in Study 3 are based on the final model applied in Study 2; however, a greater simplicity was pursued by looking specifically at SES factors for both parents and the CMs, hence excluding CMs' interest in politics and both populations' religiosity.

The central aim of Study 3 was to test the mechanism of transmission of attitudes to authority as a within-family cultural socialisation process by accounting for the relationships amongst socio-economic status and attitudes of parents' and of their offspring's, as well as the mediating effect of childhood cognitive ability.

Hence, the research question for Study 3 was formulated as follows:

RQ5. Do parents' attitudes to child obedience predict their children's attitudes to authority, after controlling for the offspring's cognitive ability?

The key finding of Study 3 is that, once cognitive ability in childhood is taken into account, parents' attitudes to child obedience only predict of their offspring's views on the

need of censorship to uphold moral standards and then only weakly so. Therefore, childhood cognitive ability influences the mechanism of intergenerational transmission of attitudes to authority by weakening the direct influence of parents' attitudes to child obedience on the three measures of attitudes to authority in adulthood, for both males and females.

Hence, the evidence for the direct attitudinal path (Jennings & Niemi, 1968) from parents' attitudes to child obedience to their offspring's attitudes in adulthood is very weak, as the strongest and most consistent predictor remains childhood cognitive ability, apart from mixed results from social class and education.

Opinion on censorship was the only facet of CMs' attitudes to authority for which parents' attitudes have a significant effect, views on the death penalty remaining the strongest and most reliably predicted attitude.

Gender differences, particularly for the Death Penalty item, remain interesting, perhaps confirming the relevance of gender in the definition of conservatism (Pratto et al., 1997; Whitley & Aegisdottir, 2000).

7.4 Contribution to knowledge

There are three distinct contributions to knowledge arising from this research: (i) theoretical implications of the observed intra-individual attitudinal stability; (ii) improvements to our understanding of appropriate measures of authoritarianism in parents and (iii) the assessment of the mechanism of intergenerational transmission as cultural socialisation rather than as simple direct attitudinal paths. I will highlight each in turn.

7.4.1 Theoretical implications of the findings on intra-individual stability of attitudes to authority

The research reported in this thesis looked at attitude change from the age of 26 to 30, and to the age of 42, considering four conceptually related measures of attitudes to authority. Although - at the aggregate mean level - increasing liberalism has been recorded for opinions on obedience to the law, stiffening sentences and, particularly, the death penalty,

no significant variation in intra-individual change could be detected across these three time points considered.

The results of Study 1 constitute a contribution to the literature on individual-level stability of the type of attitudes looked at in this thesis, i.e., attitudes to authority, in a life course perspective, and specifically in adulthood. On a similar and conceptually related set of socio-political attitudes, through panel-data-based analysis of the British electorate, Heath et al. (1994) found that socio-political attitudes were stable over time, and Sturgis (2002) confirmed these findings even after accounting for measurement error in the scale used to assess these attitudes and their change over time. Openness to political learning, considered as a driver of attitude change, has been found to decline with age in a non-linear manner, which implies increasing attitudinal stability over the life course; both the impressionable years and the midlife stability hypotheses underscore fluctuations during late adolescence and early adulthood, which then crystallise in late adulthood (Stoker & Jennings, 2008).

Hence, this work adds to the body of work reporting stability of attitudes in adulthood. The type of model applied to assess this phenomenon, LGCM, are particularly appropriate for describing inter-individual differences in the rate of change; however, the combination of results on both the measurement properties of the attitude items used, i.e., opinions on unconditional adherence to the law, need for censorship, capital punishment and stiffer sentences, as well as their change over time suggest that each of these indicators constitute a facets of attitudes to authority, each one with its own trajectory of change over the life course in adulthood, i.e. with their own progress through time.

Ontologically, my findings suggest that the types of socio-political attitudes analysed in this work can rightfully be defined as belonging to the category of value-oriented attitudes, hence as core beliefs once early adulthood is reached (J. H. Evans, 1997b; Katz, 1960).

The availability of a large number of indicators of authoritarianism for the parents' population allowed to apply statistical measurement models for the assessment of the psychometric quality of the attitudes to authoritarian child-rearing of parents. The original measure as obtained through PCA by Golding within the same BCS70 data (n.d.) was

deemed as non-reliable in order to measure a unidimensional construct; rather, once confirmatory IRT models were applied to assess its consistency, it was found that a smaller set of five indicators was a better representation of a latent measure of parents' authoritarianism, defined in this study as attitudes to child obedience. This finding also contributes to the literature discussing the validity of the use of opinions on child obedience as a measure of people's wider views on social conformity and self-direction (Feldman, 2003; Hetherington & Weiler, 2009; H. Park & Lau, 2016).

7.4.2 The assessment of the mechanism of intergenerational transmission as cultural socialisation rather than as simple direct attitudinal paths

This work's major contribution is given by the assessment of the complex interactions amongst socio-economic status and psychological traits in a longitudinal perspective, by looking simultaneously at how parents' material circumstances affect:

- i. their attitudes
- ii. their children's attitudes
- iii. their children's cognitive ability
- iv. their children's socio-economic circumstances
- v. the relationship between offspring's cognitive ability, socio-economic circumstances and attitudes

The model presented in Figure 1.1 in the introductory chapter of this thesis aimed to show the substantive paths assumed to be working behind the direct transmission of attitudes to authority, and the major postulate was indeed that even after taking into account the complexity of the interrelations amongst family and offspring's background, still I would have been able to observe direct attitudinal transmission (Bisin & Verdier, 2011; Glass et al., 1986; Jennings & Niemi, 1968).

However, based on the measures for parents' and offspring's attitudes used here, this appeared not to be the case once cognitive ability in childhood was introduced as a partial mediator of the transmission mechanism. The only exception was for the item measuring views on censorship, with however very small direct effect of parents' attitudes to child obedience on this.

I argue here that the relevance of this finding is to be found mostly in the confirmation of the socially defined features of the types of attitudes analysed here, i.e. what they represent in the process of cultural development that involves the interaction between societal norms and impositions, which define the status quo, and the experience and elaboration of this by the individuals as actors embedded in progressively smaller circles of interaction and networks (Bronfenbrenner, 1979; Super & Harkness, 1997). In particular the types of attitudes analysed here, seen as core beliefs and value-oriented, are seen as representing individuals' orientation towards change in society at large, hence about the way individuals perceive the status quo and its regulations. This involves the management of the sense of fear and threat to social change (Harmel & Gibson, 1995; Jost et al., 2009); however the large impact of cognitive ability in the definition of the level of acceptance of the status quo suggests that individual-level differences in this measure may allow to elaborate this sense of fear towards social change, giving rise to more prepared, cognitively rich adults, in an evolutionary-adaptive perspective. At the same time, I argue here that cognitive ability is socially acquired, rather than an innate characteristic, hence allowing to define the specific attitudes, although non-directly, as socially acquired primarily within the family of origin.

A further key point to assess the theoretical contribution of my findings was the confirmation and further details regarding gender differences in views on the type of issue-based attitudes analysed here, which brought me to consider to model separately for the two genders the mechanism of transmission presented in Study 3.

7.5 The strengths of this research

This work integrates different theoretical mechanisms proposed in the literature on intergenerational transmission of socio-political attitudes from parents to their offspring,

assembling and testing hypotheses from a range of disciplines, hence positing itself as a multi-disciplinary work. I looked at mechanisms described in the cultural studies and sociological literature as developmental niches (Bengtson & Roberts, 1991; Bronfenbrenner, 1979; Erikson, 1950; Super & Harkness, 1997), in the behavioural economics literature as imperfect empathy (Bisin & Verdier, 2011), in the political science literature as political socialisation (Hyman, 1959; Langton, 1969; Lipset, 1960) as well as social milieu factors (Abendschon, 2013; Corbetta et al., 2013), in the socio-psychological literature as attitudinal pathways (Jennings & Niemi, 1968), and added the observation of the effect of an individual-differences factor—i.e. childhood cognitive ability—from the psychological literature (Deary et al., 2008b; Onraet et al., 2015).

The type of data used—i.e. single-birth cohort—allowed me to assess intra-individual change in attitudes to authority in the population represented by those born in 1970 in Britain, hence to look at whether and how attitudes change for the same individual over the life course. The availability of repeated measures of the same items over the three time points has allowed the use of LGCM, which are powerful methods to detect inter-individual differences in how each individual changes over time.

Also, this same data set gave me the possibility to look synchronically at the socio-economic status of parents, their children and psychological traits, and to establish how these interact in the mechanism of transmission of attitudes, in a longitudinal perspective, and hence to take advantage of the temporal sequence of measurement occasions by hypothesising cause-effect relationship, or more generally temporal sequences of events (Singer & Willett, 2003).

The large sample sizes at both the cross-sectional and longitudinal level does not posit particular issues of statistical power (J. Cohen, 1988); moreover, a robust approach to missing data was chosen—namely, multiple imputation (Asparouhov & Muthén, 2010; Rubin, 1987).

7.6 *Limitations of this research*

7.6.1 The type of data used: generalisation

The effects observed in the cohort made of those who were born in Britain in 1970 are not easily generalizable to other birth cohorts as well as other geographical contexts, as people born in different times from the BCS70 members, as per the operational definition of birth cohort (Firebaugh, 1997; Plewis, 1985), are assumed to have experienced specific historical events not experienced by people born, let us say, ten years later. For instance, one of the key socially relevant and distinctive events that those born in 1970 in Britain experienced is the fact of growing up during the longest Conservative Party period of governance (from 1979 to 1997), for the most part led by Margaret Thatcher, which introduced reforms of the welfare state by means of market-driven privatisation processes in the educational, health and labour market services, which are seen by many as the beginning of the widening gap between the wealthy and the working classes in Britain (Cheal, 2003; E. J. Evans, 2013).

Hence, in a single-cohort design such as that used in this work, change over time could be related to age, as well as to events that occur at the time of measurement or that have occurred in between measurement occasions—that is, age and period effects are confounded (Firebaugh, 1997; T. D. Little, 2013; Twenge et al., 2015).

7.6.2 Omitted variables and mediation paths

The specification of the statistical models presented in this work was based on the key literature on the mechanism of vertical transmission of socio-political attitudes, from parents to their offspring, and led to the selection of a particular set of variables related to some of the major factors affecting the same mechanism.

However, the types of models used in the studies (longitudinal SEM) require that also the relationships amongst the variables are made clear, that is, that each path and arc, as well as the absence of them, mirror the hypotheses made in the theoretical framework of reference (McDonald & Ho, 2002). In this work the hypotheses led to the specification of a set of models in each study, such as on the structure of the measurement models for the

unobserved attitudinal constructs, which factors were considered as endogenous and which ones as exogenous; moreover I also specified direct and indirect paths, as well as associations (correlations), rather than direct effects, for instance in Study 3 for the relationship between parents' attitudes to child obedience and CMs' cognitive ability in childhood.

Nonetheless, my models could still be misspecified, due to omitted variables and confounders, as well as to misspecification of paths and arcs (J J McArdle & Nesselroade, 2014; Spanos, 2006). For instance, in Study 1 the initial hypothesis of a latent linear trajectory model specified for the four outcomes over the three time points was not adequate to represent the trajectory of change for the Death penalty item, which needed the introduction of a simplex autoregressive structure in order to explain the form of change for this item; in Study 2 no paths were specified to account for the potentially relevant relationships between gender and interest in politics (Brandt & Henry, 2012; Pratto et al., 1997), or between the latter and religion in the definition of the combined effect on the measures of attitudes to authority (Altemeyer & Hunsberger, 1992; Norris & Inglehart, 2004). Indeed, in this work, interactions amongst the variables were not taken into account.

Regarding omitted variables and confounders, in section 7.7 I revise some of the factors not taken into account in this work, such as personality (Duckitt & Sibley, 2010; Van Hiel, Cornelis, & Roets, 2007; Olver & Mooradian, 2003), self-esteem (Judge & Bone, 2001; Li, Arvey, & Song, 2011), and locus of control (Na & Loftus, 1998; J. M. Phillips & Gully, 1997) at the individual level, as well as macro-level factors such as area-level variation (Fieldhouse, Shryane, & Pickles, 2007; Gallego, Buscha, Sturgis, & Oberski, 2014), and family-level factors, such as closeness to the parents (Sinclair et al., 2005), parental involvement in educational paths (Boer & Fischer, 2013; Drozd & Pokorski, 2007). Moreover, I do not take into account here the potential mechanism of biological transmission of attitudes to authority, as per lack of data, in order to test this alternative explanation to the socialisation and cultural mechanism (Alford et al., 2005; Bouchard & Loehlin, 2001; Oskarsson et al., 2015).

However McArdle and Nesselroade (2014) define SEM as both an idea and as a technique, such that we need clear thoughts about the features of the model. In the case proposed in

my work, in order to have clear thoughts, I had to keep the models as simple as possible, so that both variables and paths were carefully selected, and others left out. Hence, future directions in the development of the analysis from this thesis are discussed in the next sections.

7.6.3 Unobserved heterogeneity

In this work we have made the assumption that people's attitudes, both in terms of structure, as well as in terms of change over time, are homogeneous phenomena once certain socio-demographic characteristics are taken into account, i.e. individuals could be placed along the continua represented by the measures of attitudes depending on the individual score on a specific indicator. However I have not checked whether individuals, regarding their attitudes and how these change over time, could be instead grouped based on the way they answer to the items, as well as on the way their attitudes change over time due to unobserved characteristics of the distributions of the data. This issue is often accounted for by means of a method part of the GLVM framework, called latent class analysis (Lazarsfeld, 1959; Moustaki, 2007; B. O. Muthén, 2004). This aspect of the work presented here could be investigated further; examples of studies looking at unobserved heterogeneity are found in Sindall et al (2015), Nylund et al (2007), and Hooghe et al (2014).

7.6.4 Measurement of RWA/Attitudes to Authority

The literature review on definitional issues in attitude research is limited by the objectives of this project. In particular, we have limited the definitions of attitude to the general theoretical structure of it, rather than referring to more specific empirical or experimental results from analyses related to the understanding of, for example, strength and accessibility of attitudes, as well as on the consequences of holding attitudes (Petty et al., 1997). Moreover, I have not analysed here the crucial debate around the attitude-behaviour gap (Ajzen & Fishbein, 1980). Nonetheless, socio-political attitudes could be analysed in relation to their influence on voting choices and indicators of social participation at large, so as to enhance the understanding of their function and validity

within a broader nomological network (Cronbach & Meehl, 1955), or, as Anastasi and Urbina (1997) defined it, within a meaningful and coherent theoretical framework.

The limited findings on dimensionality and structure of attitudes to authority partly depend on the small number of items available in the BCS70. In order to better measure this construct, items from the scales elaborated up to now in the psychological literature on authoritarianism should be added to the BCS70 questionnaire in future sweeps, possibly including some of the same items measured amongst the parents in 1975, so as to make more direct the comparison between measures of authoritarianism across the two generations.

Moreover, I argue here the need for further analyses at the item level to identify how different dimensions of authoritarianism relate to gender, via methods such as inspection of differential item functions and multiple-group analysis (Lord, 1977; Millsap, 2011; B. O. Muthén & Asparouhov, 2002).

7.7 Future directions

7.7.1 Examine the connection between attitudes and psychological characteristics such as self-esteem, personality and locus of control

In relation to a more general conception of general ability as used in the psychological literature—e.g. intelligence—Petty et al. (1997, p. 631) suggested that the association between intelligence and attitudes is mediated by other individual characteristics such as self-esteem, prior knowledge and experience (people with issue-relevant beliefs resist influence on a counter-attitudinal issue), context factors (moods), personality and subjective norms.

Amongst others, some interesting derived variables defined and measured in the BCS70 are the Malaise score (Rutter, 1970), which was administered to mothers and referred to their general health conditions, and the Rutter score (Rutter, 1967) for the child's behavioural problems, again administered to mothers but relative to their children's behaviour. This would elucidate the effect of cognitive ability on attitudes to authority, as

cognitive ability is affected by both parents' health status which determines the socio-economic conditions of households, as well as by the same child's cognitive functioning more in general.

Regarding personality, Anastasi and Urbina (1997) opened their Chapter 14 on *Measuring Interests and Attitudes* by highlighting that “[t]he nature and strength of one’s interests and attitudes represent an important aspect of personality” (1997, p. 386). Ray (1982) suggested that personality might affect social attitudes, and personality traits were brought into play in order to explain either leftist authoritarianism or ideologically non-polarised authoritarianism.

The definition commonly accepted for the concept of personality was given by Allport (Allport, 1961) as a “dynamic organisation inside the person of psycho-physical systems that create the persons characteristic patterns of behaviour, thoughts and feelings” (1961, p. 11). Thus, personality is conceptualised as being a responsive system. It is assumed to be organised in a certain way, though many hypotheses still compete on the topic. Personality is seen as being made of a dynamic structure which at the same time produces stable conformations driving behaviour, thoughts and feelings. The stability of these patterns is implied, otherwise it would be trivial to measure personality and to attribute to it such an important role in predicting behaviour, thoughts and feelings. Maltby et al. (2007) summarised the meaning of personality in terms of a construct, that is, “a mental concept that influences behaviour via the mind-body interaction” (2007, p. 8). Studying theories of personality involves studying the motivational basis of behaviour and often encompasses the analysis of developmental theories, so as to determine or understand when individual personality is generated and reaches stability.

7.7.2 Integrating alternative explanation of intergenerational transmission: heritability

Plomin and Nesselroade (1990) assert that as children grow they experience new environments, therefore in this way the amount of phenotypic variance due to environmental influences increases, whilst the amount due to genetic influences decreases—that is, heritability will decrease during development. Nonetheless, research

within genetics has shown the opposite that heritability increases with age; the hypothesis for this is that phenotypic variance due to environmental experiences cancel out during the life-span, leaving the genetic influence to account for inter-individual differences. The interaction of genotype-environment is seen as an alternative explanation of the transmission of psychological traits, of which attitudes are seen as part of in this literature (Martin et al., 1986; McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999; Plomin & Nesselroade, 1990). It would therefore be a natural extension of this work here to include a heritability component in the model (e.g. through adoption studies) and test the alternative, or complementary explanation of vertical transmission as biologically determined (Oskarsson et al., 2015).

There are numerous other directions that the research reported here could be extended. For example:

- Examine the effect of schooling, peers, and media in the definition of socio-political attitudes
- Parenting styles (De Jong, 2009)
- Attitudes-Behaviour gap and voting
- Repeat analysis on other cohorts, and geographical contexts
- Examine mediation paths
- Intergenerational transmission of other socio-political attitudes, such as gender-role, racism, and prejudice more in general
- Examine a broader attitude structure and how this is affected by cognitive ability and family background

7.8 Impact and policy implications

My findings can be seen in relation to the contemporary rises of right-wing and populist ideologies in established Western democracies, in particular following key historical events such as 9/11, the Iraq War and Hurricane Katrina in the US, as well as other issues of international impact such as the increase of migratory fluxes in developed countries from financially disadvantaged and war-torn countries (Heino, 2016; Napier & Jost, 2008). These events have been interpreted by some commentators as potential threats to the status

quo and social order, and cultural clashes have been emphasised by the right-wing political elite and media, and by the host countries' citizens. The results of the referendum on the membership in the EU for the UK in June 2016, preceded by the rise in popularity of Nigel Farage's anti-immigration UK Independence Party since 2014, the consolidation of the power of the Conservative Party, as well as the relevance assumed by populist and right-wing personalities amongst the electorate, for instance, in France, with Marie Le Pen, in Italy with Beppe Grillo, and in the US with Donald Trump, could all be easily seen as a clear historical shift towards hostile, socially conservative attitudes towards cultural change and diversity, with their emphasis on national identity and supremacy (Heino, 2016; Kaufmann, 2016). Hence, authoritarianism has seen a resurgence of mentions in political discourse, policy and party politics and understanding how authoritarian attitudes emerge and change is therefore of importance.

The types of data and analyses proposed here give strong support to the hypotheses of relevant social cleavages in the definition of the level of attitudes to authority, in particular on the mechanism of cultural transmission that may reinforce or not negative dispositions towards social change. The results reported here highlight the importance of the primary socialization agency—the family—in the development of specific authoritarian/liberal attitudinal traits through a mechanism of mediated causation whose findings are that, *ceteris paribus*, the relationship between family background, including parents' authoritarian attitudes, affect the child's development of cognitive abilities (Bisin & Verdier, 2011; Deary et al., 2008b; Schoon et al., 2010; Šerek & Macek, 2014; Sindall et al., 2015), hence their educational and occupational outcome, so that there is a direct effect of occupational class in particular on opinions on the death penalty, for both males and females; I have speculated that individuals in non-manual occupations are more likely to state their disagreement with the reintroduction of capital punishment, as being in a non-manual occupation could arguably be seen as implying a day-to-day-basis interaction with abstract thinking, which, combined with cognitive ability and the educational pathways necessary to do a non-manual job, may affect the perception of threats and of the need of such an authoritative, strict, and irreversible sanction.

The most consistent effect on liberal stances on the three items is given, indeed, by the measure of cognitive ability in childhood. I found that cognitive ability remains the

strongest predictor of opinions on censorship for both males and females. However, for the item Obey the Law I found that cognitive ability did not have any significant effect for females once parents' attitudes were taken into account. The effect of cognitive ability on this outcome was generally low, even before taking parents' attitudes to child obedience into account. I believe that this item, although interesting, is perhaps ambiguous in its formulation, with scarce discriminatory power, as well as potentially prone to social desirability bias.

I argue here that liberal, reflexive attitudinal traits should be reinforced during the impressionable years of the child development within the family environment (Quintilier, 2013), as well as at the institutional level by fostering critical discussions on socio-political issues and civic participation during the formative years, with the aim to develop those self-expressive value systems that enable individuals to be conscious actors in the inevitable process of social change, rather than powerless bystanders.

The main impact and policy implications deriving from this work are related to the findings on the effect of cognitive ability on the mechanism of intergenerational transmission of attitudes to authority. Childhood cognitive ability is a robust predictor of educational achievement, first, and of professional achievement as well. Hence, *ceteris paribus*, I found that the effect of education and occupational class is particularly relevant for the prediction of opinions on the death penalty. I assumed here that opinion on capital punishment is a robust indicator of an individual's level of authoritarianism, as per the substantive implications of someone's supporting such a strong intervention of the state on someone else's life, as a form of socially exemplar punishment.

The significant finding that those with a higher cognitive ability in childhood have more liberal opinions on issues related to social control and punishment, hence on individual freedom and self-determination, should direct towards educational measures able to enhance the development of critical and abstract thinking, not simply in order to tackle conservative views, but mostly—considering the substantial association of authoritarianism and prejudice, as well as resistance to change—in order to aid the development of adults able to accept difference and to cooperate in a cohesive manner to

adjust to inevitable social change (L. R. Jacobs & Shapiro, 2011; Keating, 2014; Min, Silverstein, & Lendon, 2012; Nie et al., 1996).

Finally, a methodological advice would be the formulation of a more psychometrically sound measure of attitudes to authority, with integration of items tapping into the contents of scales measuring authoritarianism as suggested in the psychological literature on the topic (Altemeyer, 1981; Duckitt & Bizumic, 2013; Feldman, 2003; Feldman & Johnston, 2014). Especially for studies with longitudinal data components, consistency on the scale administered at each time point should be kept, as to allow for the assessment of important features of the process of assessment of change, such as factorial and measurement invariance (J J McArdle, Grimm, Hamagami, Bowles, & Meredith, 2009; Meredith & Teresi, 2006; Millsap, 2011).

7.9 Conclusions

This work aimed to explain the mechanism of intergenerational transmission of attitudes to authority by integrating in the analysis of several potential influences: the direct influence of parents' attitudes in childhood; factors related to parents' socio-economic background; their offspring's socio-economic characteristics; and individual-level psychological characteristics, that is, the offspring's cognitive ability in childhood (Deary et al., 2008b; Onraet et al., 2015; Schoon et al., 2010). The theoretical framework of reference was therefore broad, and included literature from the fields of sociology, social and political psychology, as well as cultural and developmental studies, in order to put together previous findings on the socio-psychological determinants of people's life course orientations towards authority.

In the three studies presented above I first assessed the significance of the individual trajectories of change from the age of 26 to the age of 42 in the BCS70, and, as reported in Study 1, found that at the individual-level attitudes to authority as represented by opinions on obedience to the law, censorship, stiffer sentences and capital punishment were reasonably stable from early to middle adulthood, hence allowing us to categorise these issue-based types of attitudes as akin to value-oriented attitudes. However, despite moderately good correlations among the different attitudes within waves, the different

attitude components could not be characterised as sharing a common growth trajectory over time. This finding admits the possibility of somewhat different causal processes driving the evolution of these different attitudes, and questions whether they are truly merely facets of a wider, overarching construct of ‘authoritarianism’, or rather whether they might be considered more properly as related but distinct attitudes objects.

Once this was established, it was shown in Study 2 and Study 3 that the direct attitudinal paths from parents’ attitudes to child obedience to their offspring’s attitudes in adulthood are weak, and more importantly, that these are largely mediated by the level of childhood cognitive ability, when the CMs were aged 10. Considering cognitive ability in childhood as socially determined and in reference to its relevance in the definition of people’s attitudes to authority in adulthood, I conclude this work by stating the relevance of parental background in the definition of those psychological predispositions that allow the grown-up individual to elaborate the fear and sense of threat posited by the novelties related to social change and, within it, individual self-determination in the acceptance of diversity, as an adaptive and evolutionary characteristic.

Appendix

Appendix to Study 3

The coefficients in Bold in the tables below are significant at the 95% confidence level.

In Table 22 below, the coefficients in Italics are the R-squared values that were non-significant in the complete-cases analysis, i.e. the percentage of variance explained for the item Obey the Law amongst the male population.

Table 22 R-squared values and standard errors (S.E., in brackets) for Model A, Model B, complete cases only. Coefficients in Italics are those for which differences were found when compared to the coefficients obtained through MI

Outcomes	Model A		Model B	
	Males	Females	Males	Females
Obey the Law	<i>0.009 (0.005)</i>	0.003 (0.003)	<i>0.009 (0.005)</i>	0.004 (0.003)
Censorship	0.040 (0.009)	0.014 (0.006)	0.043 (0.009)	0.018 (0.007)
Death Penalty	0.133 (0.014)	0.112 (0.012)	0.133 (0.014)	0.113 (0.012)
Model Fit				
RMSEA	0.029		0.026	
CFI	0.982		0.974	
TLI	0.962		0.965	

Table 23 below reports the model estimates for the two theoretical models proposed in Figure 6.2, both for males and females, and for the complete cases as well as for the imputed data. The coefficients in Italics are those that do not conform across the models when comparing complete-case analysis and results from MI.

Table 23 Comparison of estimates (with standard errors, S.E., in brackets) for Model A, Model B for both the complete cases and the multiple imputed data sets

Outcomes and predictors	Model A				Model B			
	Complete cases		Multiple Imputation		Complete cases		Multiple Imputation	
	Males	Females	Males	Females	Males	Females	Males	Females
Part 1: Key outcomes and predictors. Estimates (standard errors)								
Obey the Law								
Cognitive ability 1980	0.095 (0.031)	0.040 (0.030)	0.093 (0.029)	<i>0.059</i> (0.028)	0.099 (0.030)	0.032 (0.032)	0.094 (0.031)	0.055 (0.030)
Occupational social class	-0.082 (0.032)	-0.034 (0.031)	-0.067 (0.026)	-0.057 (0.029)	-0.083 (0.032)	-0.034 (0.031)	-0.067 (0.026)	-0.057 (0.029)
Qualification	-0.002 (0.033)	0.036 (0.031)	-0.004 (0.035)	0.018 (0.031)	-0.003 (0.033)	0.035 (0.032)	-0.005 (0.035)	0.017 (0.032)
Parents' highest qualification	0.000 (0.022)	-0.014 (0.021)	-0.004 (0.015)	-0.010 (0.020)	0.002 (0.022)	-0.019 (0.021)	-0.005 (0.016)	-0.013 (0.020)
Parents' occupational social class	-0.026 (0.021)	-0.016 (0.020)	-0.020 (0.018)	-0.016 (0.021)	-0.025 (0.021)	-0.019 (0.020)	-0.020 (0.018)	-0.017 (0.018)
Parents' attitude to child obedience					-0.012 (0.026)	0.030 (0.024)	-0.003 (0.024)	0.018 (0.023)
Censorship								

Cognitive ability 1980	0.194 (0.030)	0.107 (0.030)	0.188 (0.028)	0.126 (0.031)	0.178 (0.029)	0.090 (0.032)	0.170 (0.029)	0.110 (0.032)
Occupational social class	0.068 (0.032)	0.040 (0.031)	0.039 (0.025)	0.025 (0.024)	0.068 (0.032)	0.039 (0.031)	0.038 (0.025)	0.024 (0.024)
Qualification	-0.057 (0.033)	-0.090 (0.034)	-0.062 (0.027)	-0.084 (0.029)	-0.058 (0.033)	-0.093 (0.034)	-0.062 (0.027)	-0.086 (0.029)
Parents' highest qualification	-0.012 (0.022)	-0.036 (0.021)	-0.003 (0.018)	-0.030 (0.020)	-0.022 (0.022)	-0.048 (0.021)	-0.014 (0.019)	-0.040 (0.020)
Parents' occupational social class	-0.044 (0.021)	0.006 (0.020)	-0.032 (0.021)	-0.013 (0.018)	-0.049 (0.021)	0.002 (0.020)	-0.037 (0.021)	-0.017 (0.018)
Parents' attitude to child obedience					0.063 (0.026)	0.074 (0.024)	0.067 (0.022)	0.063 (0.022)
Death Penalty								
Cognitive ability 1980	0.178 (0.029)	0.252 (0.028)	0.177 (0.034)	0.223 (0.027)	0.170 (0.028)	0.246 (0.030)	0.167 (0.034)	0.215 (0.028)
Occupational social class	0.199 (0.030)	0.032 (0.030)	0.175 (0.024)	0.103 (0.023)	0.198 (0.030)	0.031 (0.030)	0.175 (0.024)	0.102 (0.024)
Qualification	0.012 (0.033)	0.076 (0.032)	0.038 (0.031)	0.057 (0.034)	0.012 (0.033)	0.070 (0.032)	0.038 (0.031)	0.053 (0.035)
Parents' highest qualification	0.041 (0.022)	0.032 (0.020)	0.047 (0.022)	0.044 (0.019)	0.036 (0.022)	0.026 (0.021)	0.041 (0.023)	0.038 (0.020)
Parents' occupational social class	0.045 (0.021)	0.037 (0.019)	0.032 (0.021)	0.038 (0.016)	0.042 (0.021)	0.034 (0.019)	0.029 (0.021)	0.035 (0.016)
Parents' attitude to child obedience					0.030 (0.026)	0.031 (0.023)	0.037 (0.020)	0.035 (0.026)
Part 2: Predictors of parents' attitudes. Estimates (standard errors)								

Parents' attitude to child obedience								
Parents' highest qualification					0.229 (0.015)	0.241 (0.016)	0.227 (0.015)	0.239 (0.016)
Parents' occupational social class					0.147 (0.016)	0.137 (0.017)	0.148 (0.017)	0.147 (0.016)
Part 3: Effects controlled for. Estimates (standard errors)								
Occupational social class								
Qualification	0.156 (0.034)	0.116 (0.043)	0.146 (0.026)	0.176 (0.031)	0.154 (0.035)	0.107 (0.044)	0.144 (0.026)	0.167 (0.031)
Parents' highest qualification	0.067 (0.023)	0.031 (0.027)	0.059 (0.023)	0.042 (0.023)	0.069 (0.024)	0.034 (0.027)	0.061 (0.024)	0.045 (0.024)
Parents' occupational social class	0.158 (0.023)	0.052 (0.028)	0.143 (0.022)	0.091 (0.024)	0.158 (0.023)	0.053 (0.028)	0.143 (0.022)	0.091 (0.024)
Cognitive ability 1980	0.303 (0.031)	0.231 (0.038)	0.280 (0.030)	0.267 (0.037)	0.305 (0.023)	0.237 (0.039)	0.283 (0.030)	0.274 (0.037)
Qualification								
Parents' highest qualification	0.103 (0.025)	0.120 (0.023)	0.104 (0.030)	0.116 (0.028)	0.103 (0.025)	0.131 (0.024)	0.105 (0.031)	0.123 (0.028)
Parents' occupational social class	0.053 (0.027)	0.060 (0.027)	0.061 (0.025)	0.077 (0.027)	0.052 (0.027)	0.058 (0.027)	0.061 (0.025)	0.077 (0.027)
Cognitive ability 1980	0.340 (0.030)	0.382 (0.029)	0.366 (0.032)	0.387 (0.028)	0.341 (0.023)	0.396 (0.029)	0.367 (0.032)	0.397 (0.028)
Part 4: Correlations controlled for. Estimates (standard errors)								
Cognitive ability 1980								

Parents' highest qualification	0.343 (0.014)	0.363 (0.014)	0.348 (0.013)	0.359 (0.013)	0.343 (0.014)	0.361 (0.014)	0.348 (0.013)	0.357 (0.013)
Parents' occupational social class	0.361 (0.014)	0.356 (0.014)	0.364 (0.013)	0.357 (0.015)	0.361 (0.014)	0.356 (0.014)	0.363 (0.013)	0.356 (0.015)
Parents' highest qualification								
Parents' occupational social class	0.379 (0.010)	0.358 (0.011)	0.378 (0.010)	0.359 (0.011)	0.379 (0.010)	0.357 (0.011)	0.378 (0.010)	0.358 (0.011)
Obey the Law								
Death Penalty	0.083 (0.019)	0.030 (0.018)	0.070 (0.023)	0.041 (0.020)	0.084 (0.019)	0.029 (0.017)	0.070 (0.023)	0.041 (0.020)
Censorship								
Death Penalty	0.143 (0.018)	0.170 (0.017)	0.140 (0.020)	0.15 (0.019)	0.141 (0.018)	0.168 (0.017)	0.138 (0.020)	0.148 (0.018)
Obey the Law	0.195 (0.017)	0.115 (0.018)	0.178 (0.022)	0.143 (0.019)	0.196 (0.017)	0.114 (0.018)	0.178 (0.022)	0.143 (0.019)
Parents' attitude to child obedience								
Cognitive ability 1980					0.226 (0.018)	0.227 (0.018)	0.227 (0.017)	0.238 (0.017)

Table 24 reports the estimated factor loadings and standard errors for the two uni-dimensional latent constructs measured in this study, i.e. attitudes to child obedience, measured amongst the parents in 1975, and childhood cognitive ability measured in 1980 in the British Cohort Study 1970.

Table 24 Estimated loadings and standard errors (in brackets) for the measures of cognitive ability and of parents' attitudes to child obedience. Multiple-imputed data sets

	Model A		Model B	
	Males	Females	Males	Females
Cognitive ability 1980				
Matrices	0.648 (0.010)	0.633 (0.009)	0.643 (0.011)	0.626 (0.009)
Digits	0.426 (0.011)	0.417 (0.010)	0.429 (0.011)	0.418 (0.010)
Definitions	0.807 (0.009)	0.820 (0.010)	0.809 (0.009)	0.820 (0.011)
Similarities	0.761 (0.009)	0.768 (0.010)	0.761 (0.009)	0.765 (0.010)
Parents' attitude to child obedience 1975				
Talk			0.575 (0.011)	0.572 (0.012)
Accept			0.579 (0.011)	0.567 (0.011)
Attention			0.620 (0.011)	0.620 (0.011)
Talk back			0.563 (0.011)	0.557 (0.011)
Told twice			0.540 (0.011)	0.552 (0.011)

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