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Unpacking Culture Shifts In Post-War Britain: A Critical Encounter With Ronald Inglehart

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Introduction

In the past twenty years it has become commonplace to argue that widespread socio-cultural changes have profoundly upset traditional values systems and orientations throughout the world (see variously Giddens 1990; 1995; Beck 1992; 2000; Bauman 2000; Castells 1996; 1997; Hall 1996). Yet, as Craig Calhoun (2005) has argued, these views propounded within the humanities, cultural studies, anthropology, and sociology, have signally failed to engage with cognate concerns in economics, political science, and psychology. This lack of dialogue should be a cause of concern for at least two reasons. Firstly, it is those writers who explore cultural change from the 'harder' social science disciplines who command significantly more attention from policy makers and influential power brokers. The influence of Francis Fukuyama (1996), Samuel Huntington (1997), and Robert Putnam (2000) on policy circles in the United States and Europe is considerable. Secondly, researchers in the these disciplines have developed a battery of methods for empirically examining socio-cultural change using quantitative survey data, the findings of which are instructive and should command widespread - though critical - interest and attention from those working in other disciplines. It is the aim of this paper to encourage dialogue by considering in detail the arguments of one of the leading exponent of such work, the American political scientist, Ronald Inglehart, and to use our original analysis of British data to rework his arguments in ways which develop our understanding of recent socio-cultural change.

Inglehart is an especially important figure to examine as part of this dialogue. Over a period of thirty years, Inglehart's work (1973; 1977; 1990; 1997; Inglehart and Welzel 2005) has represented the most empirically extensive account of the nature and scale of the transformation of cultural values using survey data that exists anywhere in the world. In his more recent work, Inglehart (1997, Inglehart and Welzel 2005) is also distinctive in seeking to relate his arguments to those developed within cultural studies and sociology, with numerous references to Ulrich Beck, Anthony Giddens, Jean-Luc Lyotard and Michel Foucault. Inglehart's central argument, that there has been a steady, global shift from materialist to post-materialist values does indeed strike considerable chords with debates about reflective modernisation, post-modernity, and de-traditionalisation. '(A) postmodern cultural shift is taking place that manifests many of the key aspects discussed by post-modern thinkers' Inglehart (1997: 20) reports. Inglehart argues that there are global trends towards a widespread rejection of rationality, authority, technology and science; a revalorisation of tradition, and the rise of new values and lifestyles characterized by greater tolerance of ethnic, cultural and sexual diversity. Inglehart's explicit interest in the relevance of 'post-modernisation' means that a critical engagement with his arguments are of considerable value in developing our understanding of contemporary cultural change, in ways which have theoretical as well as methodological significance. However, we also want to show that it is necessary to contest central aspects of Inglehart's account and contest his interpretation of modernisation and the rise of self-expressive values (variously termed 'post-bourgeois' values, 'post-materialist' values, 'well-being' or 'post-materialist liberty aspirations') in contemporary advanced societies.

This paper therefore begins by summarising core aspects of Inglehart's arguments, in order to show their significance for debates within cultural studies and sociology. We argue that although his work is little used within these latter disciplines, it has considerable potential

significance. We argue that Inglehart's work is subtle and should not be dismissed as a crude form of modernisation theory, and should instead command considerable interest from a wide range of social theorists as one of the most empirically extensive attempts to measure cultural change. However, we also point out theoretical insufficiency in his argument which attempts to provide an individualistic rationale for a global cultural change without regards to the social.

We secondly turn to consider the empirical character of Inglehart's analyses, paying particular attention to how he conceptualizes and operationalizes his definitions of materialism and post-materialism as well as how he defines tradition and the additional 'traditional–secular' scale. We argue that Inglehart's attempt to place a range of different attitudes on a materialist/ post-materialist scale (also termed the modernization scale) is problematic, and his claim that contemporary advanced industrial countries have become more post-materialist does not necessarily stand up in the face of detailed scrutiny of survey evidence.[1] We question the way in which he uses his own subjective interpretation of inductive scales derived from factor analysis.

From our interest in the individual/social interface, in the third section we use an alternative strategy, correspondence analysis, to show the pattern of cultural change in Britain between 1981 and 1999. Correspondence analysis, a method which is common in France but rarely used in Anglophone social science, is a means of examining how we can unravel the complexity of attitudes and values. Here we argue for the importance of distinguishing conformist and more conscientious–rebellious attitudes, and collective and individualist ones, in ways which recognize the political character of attitudes formation.

Our fourth section takes this argument further. We reanalyse the pattern of cultural change, using the ten selective characteristics, chosen by Inglehart himself for the construction of 'traditional–secular' and 'survival–self-expressive' scales, and compare the results from the two different data reduction methods: the correspondence analysis, used at the individual–level, and the factor analysis, used at the aggregate-level. We argue that the construction of individual value spaces is better represented in correspondence analysis, and point out the shortcomings of Inglehart's reductionist thinking, (though not of his data reduction technique *par se)*, that diminish cultural diversity into a pan-national modernization trajectory. In conclusion, our paper breaks new ground by subjecting Inglehart's arguments to detailed empirical scrutiny using British evidence, and through this encounter we develop an alternative account of cultural change in Britain, which is not just a rational response to external environment, or dependent on the course of past changes, but also dependent on inter-subjective relationships that construct the social.

1: Why study Ronald Inglehart?

Inglehart's theorisation of socio-cultural change can readily be dismissed as a reworking of modernisation theory. In his most recent publication he has firmly situated himself within this perspective: 'although previous versions of modernization theory were deficient in several important respects, a massive body of evidence indicates that its most central premise was correct: socio-economic development brings major changes in society, culture, and politics' (Inglehart and Welzel 2005: 5). The core of Inglehart's arguments here rests in his emphasis on the rise of 'post-materialist values'. Using evidence from attitude surveys in numerous nations, he claims that 'the basic value priorities of Western publics had been shifting from a Materialist emphasis toward a Postmaterialist one - from giving top priority to physical sustenance and safety toward heavier emphasis on belonging, self-expression and the quality of life' (Inglehart 1990: 66). In his early work, Inglehart explains this shift in terms of Maslow's need hierarchy, where 'the rank ordering of human needs varies as we move beyond those needs directly related to survival, (away from) the 'material' needs for

physiological sustenance and safety, (towards) nonphysiological needs such as those for self esteem, self expression and aesthetic satisfaction' (33). He goes on to note that 'the fact that unmet physiological needs take priority over social, intellectual or aesthetic needs has been demonstrated all too often in human history: starving people will go to almost any length to obtain food' (Inglehart 1997: 33). Such a mechanistic rendering of culture shifts is, of course, highly problematic, since it is now widely recognized that scarcity itself is a relative state and does not itself produce values which are not also culturally mediated.[2]

However, it would be wrong to dismiss Inglehart for this apparent reliance on a crude, reductionist account of human motivation. Four aspects of his work can be emphasized which show considerable subtlety and which point in the direction of a more nuanced account of socio-cultural change. Firstly, sometimes Inglehart's interest in culture leads him to dispute the apparent reductionism that underlies modernization theories. Part of his own advocacy of evolutionary perspectives comes from his repudiation of dominant rational choice perspectives within political science, and his background.

> The culture approach today is distinctive in arguing that (1) people's responses to their situations is shaped by subjective orientations, which vary cross culturally and within sub-cultures; and (2) these variations in subjective orientations reflect differences in one's socialisation experience… *Consequently, action does not simply reflect external situations*.
>
> (Inglehart 1990: 19, our italics).

This statement is difficult to reconcile with his own argument that 'an individual's priorities reflect the socio-economic environment: one places the greatest subjective value on those things that are in relatively short supply' (Inglehart 1997: 33). One instance of how this equivocation surfaces in his work is his recent insistence that alongside the familiar shift from materialist to post-materialist values, or as he has recently phrased it, 'survival' to 'well-being' (Inglehart, 1997), or 'self expression' (Inglehart and Welzel, 2005) there is also a separate division between 'traditional' and 'secular' values. He argues that this latter distinction is emblematic of the earlier historical shift from pre-modern to modern industrial society, but it is also apparent that he sees the traces of this prior shift still being apparent in thoroughly 'modern' nations. The reasoning for the recent incorporation of a second axis (i.e. traditional – secular) into his account is presumably that because he now has data on less developed nations it is appropriate also to recognize that the difference between traditional and rational/secular values will be important. However, as is evident from his data, this second axis does not neatly distinguish less developed from more developed nations. Thus the United States emerges as a relatively traditional nation, rather similar to India, Turkey, Bangladesh and Iran, and very different from Sweden, Norway, Japan, and Germany. Inglehart emphasizes the persistence of religious traditions in ways that are not eradicated by modernisation. 'Religious traditions have an enduring impact on the contemporary value systems of these societies… But a society's culture reflects its entire historical heritage…' (Inglehart and Welzel 2005: 64). This tension is as an indication that Inglehart's apparent advocacy of modernisation theory is not a simple or unequivocal one.

We might better understand this equivocation, by secondly, emphasising Inglehart's concern to avoid implicit ethnocentrism, with a recognition that early versions of modernisation theory were premised on the assumption that America was the quintessential 'modern' nation to which all other societies would aspire. The strength of Inglehart's account is its resolutely comparative concern to obtain data on as many nations as possible so that it is empirically possible to avoid treating any one nation as the template for others. Whilst his early work was based on studies of European nations and the United States, he has more recently embraced nations from every continent, containing 85% of the world's population. And in fact, this exercise has led Inglehart to emphasize American exceptionalism (see also footnote 1 above).

'The United States is not a prototype of cultural modernization for other societies to follow… in fact the United States is a deviant case, having a much more traditional value system than any other post-industrial society except Ireland… the Swedes, the Dutch and the Australians are closer to the cutting edge of cultural change than the Americans' (Inglehart and Welzel 2005: 65).

A third point to emphasize in Inglehart's defence is his repudiation of any overt functionalist logic.[3] Inglehart is emphatic that there are no linear trends, that there is national diversity, and that there is no straightforward relationship between economic, social and cultural change. His form of modernisation theory is therefore not that of the functionalists, but is rather to be understood as inductive generalisations from his survey evidence. It is this which explains his eclectic - at times cavalier - references to whatever theorist may appear to offer legitimacy to his findings. And this is testimony to the real strength of his work, which is its methodological sophistication. His is the most sustained attempt to use cross-sectional national surveys at different points in time to measure changing cultural values, using a battery of multivariate statistical techniques. His methods are intriguing, including mapping methods such as principal components analysis at the aggregate level which allow him to describe changes in popular values in unusual detail. Inglehart's innovation was to examine attitudes over time through using repeated cross-sectional surveys comparatively over the years, ensuring comparable questions were asked on different national surveys, namely starting with the Eurobarometer (from 1976), then the European Values Study and the World Values Survey (in 1981–84, 1990 and 1999–2001). By this means he could compare responses in up to 120 different nations and present his account as having unparalleled global reach (Inglehart and Welzel, 2005)[4].

A fourth strength is his theory of 'inter-generational value change', which sits rather uneasily with his references to Maslow and scarcity. Rather than cultural shifts being embraced 'across the board', Inglehart argues that change arises from younger generations replacing older generations. Thus, most adults have fairly stable attitudes having been socialized into values that are not easily altered, and change comes from younger generations replacing older ones. (Inglehart and Welzel, 2005: 95). Through this means, Inglehart recognizes that attitudes are not a simple reflex of prosperity or economic position, and his argument points, in an intriguing way, to stability as well as change.[5]. Despite the frequent references by historians or social theorists to cultural change, Inglehart's analysis suggests much more continuity, and he is explicit that there is no evidence that there are patterns of global convergence over recent decades.

In sum, over the last three decades, Inglehart's commitment to cross-national, cross-sectional surveys on people's values, his central argument of the shift away from materialist towards post-materialist values, and his insistence on the scarcity / intergenerational-value-change theory have been unshaken and unaltered. Although he rephrases his arguments with ad hoc appropriation of social theories (such as post-modernists claims and those of Huntington and Putnam), there lies an unmistakable tone of teleological inevitability underneath his 'inductively-derived' and 'tested-by-evidence' arguments that are akin to any modernization theory. In his most recent works, he recapped his theory as 'a revision of modernization theory with path dependence', but this renewed recognition of cultural heritage and inclusion of a self-reflexive individual into his model does not, however, represent his surrender to a rational choice model. The social/inter-subjective aspect of individual value formation is left unexplored as Inglehart makes a theoretical jump from a rational motivational theory onto a sweeping world-wide value change. Had he explored the individual/social interface, as for example, Pierre Bourdieu (1985) or French inter-subjectivist economist would have done, and had he given more attention to each societal case, the 'socialization' part of Inglehart's argument could have been developed further. In this paper we probe 'the social' further, to unravel the problems associated with the use of individual attitudinal data and the aggregative interpretive method of Inglehart's choice. By this, we argue that a more appropriate method,

such as those used by Bourdieu in his analysis of social space, more fully reflects the socially-dependent nature of value formation. Our attention to the inter-subjective nature of values indicates that change may not be uni-directional and/or one-dimensional as Inglehart's modernization theory suggests but more diverse and specific to formation of social and communicative space of each societal case, as indicated by quotes from the following theorists.

> Does the post-bourgeois [post-materialist] phenomenon really 'tap a relatively well integrated and deep-rooted aspect of the respondent's political orientations' and is it 'integrated into the individual's attitudinal structure - a fact which suggests attitudinal stability or is it merely a fashionable and slightly cynical pose adopted by those who, actually or potentially, can afford to be less concerned with their personal material security?

> (Marsh, 1977: 169)

> The rise of post-materialism is not due to the different formative experiences of different generation units, but to exposure to the specific world views inculcated by distinct communications networks.

> (Habermas, 1979)

> One should look for a distance, or self-distancing, from the dominant class and its values […] in an inherited language, […] in its stereotypes […] of self-expression and practical solidarity with others […] in short, everything that is engendered by the realistic hedonism and sceptical materialism which constitute both a form of adaptation to the conditions of existence and a defence against them.

> (Bourdieu, 1979, 395)

## 2: Methods and data in the analysis of socio-cultural change

Let us now turn to consider in detail Inglehart's empirical findings, focusing on the British case. The specific focus is valuable in its own right because Inglehart rarely discusses intra-societal differences, and he has not examined the British case in any detail[6]. By looking at the way that Inglehart marshals his arguments on the basis of individual-level data from this one nation, we will show how we can reread the evidence to prove an alternative account of socio-cultural change.

As we have seen, Inglehart's main focus has been on the shift from materialist to post-materialist values, which were labelled as 'acquisitive' and post-bourgeois' in his earliest publication in 1971, and latter of which he recently labels as 'post-materialist liberty aspirations' as part of the array of five indicators which compose his 'survival - self-expression' scale. He argues that this trend is common across most nations in the world. In the UK in 1970, there were many more materialists than post materialists: when one subtracts the percentage of people advocating materialist values from those supporting post materialist values, there is a negative score of -29%. However, by 1994, this negative score had reduced dramatically, and stood at only -7% (Inglehart 1997: Figure 5.4). Britain here stands very much in the middle of other European nations and the US. In 1974 post-materialist values were stronger in the Netherlands and Belgium (though there were still negative scores of around 15–20%), followed by the USA and Ireland (negative scores of -25%), with Britain following along with France, and Italy. Denmark and West Germany were the least post-materialist nations, with a negative score of around -35%. By 1994 there were some striking changes in the relative order between nations. Denmark moved from being the second most materialist nation in 1970 to being the most post materialist in 1994. By contrast, Belgium

had been the most post-materialist nation in 1970, but was the least post-materialist in 1994. Britain remained firmly in the middle of this group of nations, close to Italy and France.

In one of his most recent work, using survey data from 65 countries, Inglehart maps different nations at two points in time into two dimensional scale, according to their position with respect to 'survival - self expression', and 'traditional - secular' values (see Figure 1, Inglehart and Baker, 2000, Figure 6).[7] Inglehart's dual-scaled matrix of 'survival - self-expression' and 'traditional - secular' values is derived by principal component analysis of ten questions, which we examine in detail later (Inglehart and Welzel, Internet Appendix, pp. 8 – 12).

Figure 1: Change in value over time on two dimensions, by Inglehart and Baker
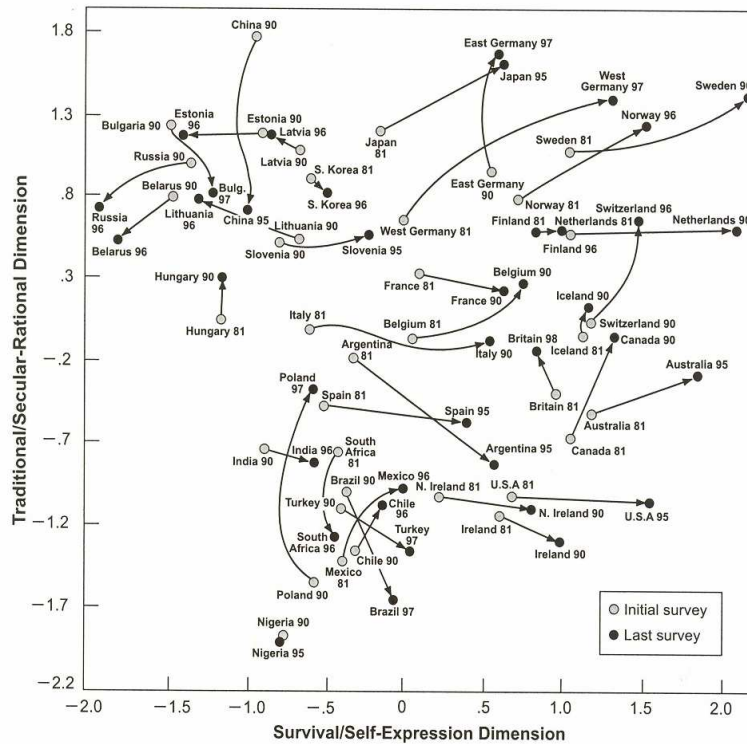
Source: Inglehart and Baker, 2000, p. 40, Figure 6.

Figure 1 shows that Britain scores less on 'survival - self-expression' dimension and more on 'traditional-secular' dimension in 1998 compared to 1981, meaning that Britons are now more materialistic and more secular compared to twenty years ago. The U.S., Ireland and Northern Ireland which had already been lagging behind other post-industrialized nations on 'traditional-secular' dimension scored even less on this factor in the more recent surveys. Indeed, 22 out of 38 countries in the map have moved their positions in the directions which are not accounted for by Inglehart's scarcity and intergenerational-value-change hypothesis.[8]

Of course, the fundamental issue deriving from the discussion above concerns how Inglehart operationalizes and measures materialist and post-materialist values, and 'survival - self-expression' and 'traditional - secular' values, so that it becomes possible to place nations on a unitary scale of one or two dimensions as in Figure 1. Inglehart argues here, using factor analysis, that different attitudes, on a variety of issues, can meaningfully be reduced to a simple scale which makes cross-national comparison possible.[9] First, we examine his

measures of materialist/post-materialist values and then discuss his more elaborated dual axial measurement, i.e. 'traditional - secular' and 'survival - self-expression' values, which are also constructed in a similar manner. Inglehart argues that measures of people's advocacy of materialist or post-materialist values can be derived from their responses to questions asking them to indicate the main national priorities (see Table 1 below).

Table 1: The 12-item battery of Materialist and Post-materialist measures

Materialist Measures	*Post-Materialist Measures*
A) Maintaining order in the nation	B) Giving people more say in decisions of the government
C) Fighting rising prices	D) Protecting freedom of speech
E) Maintaining a high rate of economic growth	G) Giving people more say in how things are decided at work and in their community
F) Making sure that the country has strong defence forces	H) Trying to make our cities and countryside more beautiful
I) Maintaining a stable economy	K) Moving towards a friendlier, less impersonal society
J) Fighting against crime	L) Moving towards a society where ideas count for more than money

In much of his work Inglehart reduces the indicators above to just four, with A and C being indicators of materialism and B and D being the indicators of post-materialism, having been convinced by the polarization results of the factor analysis of the 12-item battery in his earlier work.

In assessing the strengths and weaknesses of these measures of materialist and post-materialist values, let us first note that on a prima facie basis, only three of the questions listed in Table 1 (c, e, and i) directly tap 'material' issues pertaining to economic advancement. Even here they ask about measures which might be deemed relevant to national security rather than material well-being. Inglehart (1990: 132f) in fact notes that there are two types of 'materialist' measure, one based on physiological (economic) needs, and the other on physical security. 'Whilst these two types of needs are not identical, both are materialist in that they are directly related to physiological survival'.[10] Here, Inglehart falls back on his Maslovian heritage, by drawing on the importance of 'scarcity' as an explanation as to why materialist values appeal to those in relatively underdeveloped societies. 'Post-materialist' concerns are not entirely convincing, either. 'Beautiful cities and country-side' (h), for example, seems closely related to 'maintaining order' (a), and, indeed, when Inglehart ran one-dimensional factor analysis of the above 12 items, 'beautiful cities and country-side' scored the centre ground on the materialist/post-materialist scale. (Inglehart, 1997: 190)

Table 3 reports on the changing distribution of these indicators in the UK to allow us to see whether there appears to be a shift from materialist to post-materialist measures. In the questions for the UK surveys as part of the European/World Values Study, for example, the 12-item battery is only available in 1990 and 1996. The 4-item battery was used in the 1981 survey, and the inflated 5-item battery was used in the 1999 UK survey, including the option

for 'improving the standard of living'. We here show the 4- and 5-item results for a comparison over time. In fact, in the British case there does not appear to have been any obvious shift to post-materialist measures: between 1981 and 1990 those who chose only materialist options fell from 22.7% to 19.3%, and they only increased in 1999 because of the addition of a fifth, materialist option concerned with 'standard of living'. The proportion of those who only chose post-materialist national aims falls to 5.3% in 1999. We can see that including the additional aim of 'standard of living' mainly takes support away from 'giving people more say' and 'freedom of speech'. Even if we ignore those selecting the 'standard of living' response, and consider the proportions choosing one of the other four options, we can see between 1990 and 1999 a dramatic rise in those selecting maintaining order as the 1st national aim.

Table 2: Proportions of respondents as Materialist and Post-materialist

		1981	*1990*	*1999*
1st aim of country	A) Maintaining order	31.6	23.9	21.2
	B) Giving people more say	27.2	28.4	16.4
	C) Fighting rising prices	22.9	28.6	13.0
	D) Freedom of speech	16.6	17.2	9.1
	E) Standard of living	-	-	37.5
2nd aim of country	A) Maintaining order	24.0	22.4	15.0
	B) Giving people more say	21.5	22.9	17.0
	C) Fighting rising prices	28.4	23.9	17.8
	D) Freedom of speech	23.4	27.4	15.3
	E) Standard of living	-	-	31.1
Materialist	A/C/E – 1st, A/C/E – 2nd	22.7	19.3	26.8
Mixed	A/C/E – 1st, B/D – 2nd	31.2	32.3	43.6
	B/D – 1st, A/C/E – 2nd	29.8	26.9	19.6
Post-materialist	B/D – 1st, B/D – 2nd	13.7	18.1	5.3
Total number		1231	1484	1000

In accordance to Figure 1 (Inglehart and Baker, Figure 6), Table 2 does not indicate any simple rise in post-materialist values in Britain over this time period, but more importantly also indicates how questionnaire design issues can dramatically affect how such shifts can be analysed. A fundamental feature of Inglehart's argument is that whilst political attitudes and opinions might change according to specific contexts, cultural values are more enduring. This distinction allows Inglehart to differentiate his concerns from opinion pollsters who explore short-term trends. The problem, for Inglehart, is that he relies on attitude questions to derive his measures of culture, and so cannot gain a measure of culture which is not derived from questions about attitudes. The most interesting critique here is by Clarke et al (1997). Clarke et al point out that people are more likely to think fighting high prices are a priority in a period of inflation, with the result that when the high inflationary period of the 1970s gives

way to the lower inflation of the 1980s, respondents become less likely to choose the materialist indicator. Hence, what Inglehart interprets as the rise of Post-materialism is seen by Clarke simply as the result of the changing economic environment. Clarke (2000) conducted a comparative experiment in Canada using two different sets of battery, one including 'fighting rising prices' and the other including 'creating jobs', employing ordered Probit analysis of values orientations. He shows that when the 'materialist' option of 'fighting rising prices' is replaced by 'creating jobs' this attracts much higher levels of support, and implies that respondents are much more materialist than one would assume from their responses to the fighting rising prices option. A similar logic might explain why, in the British case, the introduction of 'standard of living' as a national aim in 1999, seems to radically increase materialist values in this later year. This is prima facie evidence that the apparent shift towards post-materialism that Inglehart emphasizes is in fact an artefact of questionnaire design.

We can explore this issue further by considering how far there is a clear relationship at the individual-level between people's apparent post materialism and other kinds of attitudes. Davis (2000) shows that attitudes to race and civil liberties do not link well to the two post-materialist measures in the way that one might think they should, and he doubts these two questions are linked to a broader cluster of post-materialist values. Davis (1999, 2000) used OLS regression to test consistency of post-materialist choices made by the individual respondents, and found that the individual bases for Inglehart's aggregate-level argument was weak.[11]

This point is even more apparent when it is realized that when asked for their two top priorities, most respondents pick one choice from the materialist, and one from the post-materialist basket. Analysing Inglehart's Euro-barometer scale, Moors (2003) argues that there are different relationships between two pairs of questions: 'having more say' and 'maintaining order' seem to be in relationship to each other, as do 'fight rising prices' and 'defend freedom of speech'. Moors shows that there is a cohort shift with respect to the former pairing, with younger generations more likely to see it is a priority to maintain order. With respect to the latter pairing, there is no cohort effect, but more educated people are more likely to want to defend 'freedom of speech'. In short there appears to be no unitary materialist and post-materialist mind set .[12]

This argument is compatible with the claims made by British researchers, such as Heath et al (1985), who argue that a key difference is between 'authoritarian' and 'libertarian' respondents, rather than between materialist and post-materialist. Of course, if the measures are interpreted in this way, they lose a clear anchor in Inglehart's socialisation theory, since the link between authoritarianism and scarcity is lost, and the reliance on a version of Maslow's hierarchy of needs cannot be justified. In addition, Heath et al argue that this scale is independent of that between conventional 'left-right' politics concerned with issues of redistribution (and hence, one might suggest, to issues of scarcity, and see also Flanagan 1987).

Inglehart recognizes that 'the Postmaterialist dimension can, indeed, be broken down into its constituent sub-clusters' However, he insists on 'the robustness of the broader Materialist - Postmaterialist dimension: if one measures people's priorities, *then no matter how you slice the data*, one comes up with an overall pattern on which the Materialist items are at one side, and the Postmaterialist items are on the opposite side' (Inglehart 1997: 123). In his more recent works, Inglehart uses 10-item battery of questions to construct a global map of cultural values, as shown in Figure 1.

Table 3: The 10-item battery for 'traditional – secular' / 'survival – self-expression measures

Traditional – secular values	Survival – self-expression values
1) Importance of god	6) Priority for economic and physical security*
2) Teach children obedience and faith rather than independence and determination**	7) Feeling of unhappiness
3) Disapproval of abortion	8) Disapproval of homosexuality
4) National pride	9) Abstaining from signing petition
5) Respect for authority	10) Distrusting in other people

*Note: * An index derived from materialist – post-materialist measures as explained above. ** An index derived from four questions regarding suitability of teaching children obedience, faith, independence and determination.*

Table 3 reports on the questions/indices that are used for the factor analysis, from which Inglehart obtains the dual scale of 'traditional – secular' and 'survival – self-expression' values. He argues that values (1) – (5) on the left-side column tap into traditional values, and values (6) – (10) on the right-hand column indicate people's survival values. However, once again, Inglehart's measures are not straight forward. The difference in emphasis between 'traditional' and 'survival' values are not clear. Why should 'disapproval of abortion' be a measure of traditionalism, and 'disapproval of homosexuality' be a measure of self expression? Why should a 'feeling of unhappiness' be related to a 'survival' condition?

We can therefore identify two major problems with Inglehart's analysis. Firstly, change over time, in the form of the rise of post-materialist values on a world-wide scale, may simply be an artefact of questionnaire design: this certainly seems to be the case in Britain. Secondly, looking at a range of attitudes at any one moment in time, it is not clear that they can usefully be summarized by a simple unitary indicator, such as that of materialist or post-materialist or even a dual-axial indicator, such as 'traditional – secular' and 'survival – self-expression' values. What we propose to do now, in the British case, is to explore the implications of both these criticisms by examining the structure of a range of attitudes over time, so that we can develop an unusually rich interpretation of value change in Britain. Here we use a method, multiple correspondence analysis, which has been little used in these debates, but which offers considerable potential for mapping diversity in people's values at intra-societal level.

3: Multiple Correspondence Analyses

Correspondence analysis as a geometric approach to multivariate data analysis originated in France by Benzecri (1969) and was used by Bourdieu (1985) to lay out the complex relationships between lifestyle and taste in 1960s France. Correspondence analysis is valuable since it allows us to see inductively whether a range of different attitudes cluster together by seeing whether they have a similar position in geometric space. Multiple correspondence analysis (MCA) proceeds differently to standard linear regression-type techniques or exploratory multivariate techniques, such as factor analysis (FA), which seek to define a dependent variable which might then be explained through different combinations of independent variables. Rather, it proceeds inductively from a complex contingency table, not

by providing summary statistics, but by transforming its values into a visual display whose dimensions can then be interpreted. It can thus be seen as a descriptive procedure in the way Abbott (2002) endorses.

Factor analysis that Inglehart uses, on the other hand, proceeds first by providing summary statistics for the pre-determined independent variable, and explores the inter-relationship between the dependent variables. His emphasis is on the 'efficiency' of this reduction technique, therefore he justifies his use of minimal number of dependent variable, down to a unitary scale of materialist – post-materialist measures, whereas our emphasis is on inductive understanding of diversity and complexity in the data structure and the relevance of data representation to the complex reality. Having said that, our approach can also provide as robust and rigorous summary measure as those provided by factor analysis, as a by-product of the analysis. In the end, the two data reduction methods have a similar mathematical property, but how you proceed the derivation is completely different. The conceptual framework of correspondence analysis fits the inductive understanding of social spaces as defined by the complex inter-relationship among individuals. The two techniques can be used complementarily.

We use data collected in the UK part of the European/World Values Surveys in 1981, 1990 and 1999. Each survey is a random representative sample of the UK residents and was conducted by Gallup Organisation in 1981 and 1990, and by Quality Fieldwork & Research Services in 1999. The number of survey respondents is 1231 in 1981, 1484 in 1990 and 1000 in 1999. The variables which appear in all three surveys are used to analyse the attitudinal space of the respondents. The original attitudinal questions were recoded into binary responses, and the socio-demographic variables were recoded into appropriate categories to enable comparison over time.

In this section, we first focus on the materialist – post-materialist measures, and then in the next section, we move onto examine the 'traditional – secular' and 'survival – self-expression' measures. The four-item battery, and the 5-item battery in the 1999 case, is used to replicate the measures of materialism and post-materialism. They are not included as active variables in order to maintain consistency of the measures of attitudinal space over the three decades, but are superimposed on to the resulting attitudinal map as inactive variables. Having observed patterns in these attitudes, we will empirically be able to assess whether they are related to Inglehart's materialist and post-materialist measures.

Table 4: Recoded binary choices and proportions of the respondents

	y/n	1981	1990	1999
Always respect parents	y	54.0	66.8	58.5
	n	41.0	30.3	32.0
Most people can be trusted	y	41.8	42.4	27.7
	n	54.8	54.6	68.3
Life satisfaction > 80%	y	60.0	55.7	56.7
	n	39.0	43.7	42.3
Child needs parents	y	63.6	71.8	57.7
	n	33.5	25.5	33.6
Women needs child	y	20.1	19.9	17.8
	n	72.5	71.0	70.3
Woman as single parent	y	32.2	34.9	32.0
	n	45.2	46.2	34.7
Less emphasis on money	y	60.4	64.4	63.8
	n	11.0	10.4	6.4
More emphasis on technology	y	58.1	65.7	66.3
	n	11.7	13.5	6.1
More respect for authority	y	69.7	73.2	67.8
	n	6.7	9.4	7.2
More emphasis on family life	y	81.9	89.0	88.9
	n	2.2	2.0	1.4
Have signed petitions	y	62.6	74.5	79.1
	n	8.5	8.0	5.0
Have joined boycotts	y	6.9	13.2	15.9
	n	58.6	49.9	36.6
Have attended demonstrations	y	9.7	13.6	12.8
	n	53.6	49.6	45.4
Have joined strikes	y	6.7	9.6	8.1
	n	72.0	69.4	58.6
Have occupied buildings	y	2.4	2.4	2.0

		82.9	85.2	77.6
Have confidence in church	y	17.3	18.4	8.9
	n	11.3	12.0	18.0
Never justify homosexuality	y	40.8	40.8	24.1
	n	6.3	4.3	14.9
Never justify prostitution	y	45.1	43.1	39.9
	n	3.2	1.5	3.9
Never justify abortion	y	29.0	19.7	25.2
	n	5.4	2.7	7.3
Never justify divorce	y	14.0	12.6	12.2
	n	8.0	5.3	11.3
Never justify suicide	y	47.0	39.6	38.4
	n	2.6	1.2	2.7
Total number	42	1231	1484	1000

Tables 4 show the summary statistics of the variables used in the analysis. We used 21 comparable questions over time, far more numerous than the four questions used for Inglehart's materialism – post-materialism index, or the ten questions used for 'traditional – secular' and 'survival – self-expression' matrix. It shows that most attitudes do not show any common trend across all three years: in fact for 13 out of the 21 attitudes, a shift between 1981 and 1990 is put into reverse by 1999. In only a handful of cases are there clear indications of any kind of trend over the nineteen year period. The number of people signing petitions rises from 62.6% to 74.5% and then again to 79.1% in 1999. The proportion never justifying suicide falls from 47% to 38.4%. However, the overall impression from Table 3 is that there are few clear shifts, and that many shifts evident between 1981 and 1990 are reversed by 1999. The socio-demographic characteristics of respondents are shown in the appendix.

Table 5 shows the summary results of a correspondence analysis of a range of attitudes taken from the 1981, 1990 and 1999 European/World Values Surveys. It indicates that in all three years a three dimensional solution is appropriate. We can also see that the percentage of inertia (total variance) explained by the first dimension is diminishing and that the cumulative percentage of inertia explained by the three dimensions is also diminishing over the three decades. This indicates that structure of people's value space is changing slowly over this period and the questions that are used to construct the initial measures are getting less relevant to the overall structure of people's values in contemporary Britain.

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Table 5: Eigenvalues and Inertia for Three Principal Dimensions

Year	Number of Dms.	Eigenvalues	% of Inertia	Cum. % of Inertia	Chi-squares
1981	1	0.195	16.011	16.011	***
	2	0.074	6.051	22.061	9.960
	3	0.070	5.760	27.821	0.291
Total Inertia = 1.214					
1990	1	0.173	14.344	14.344	***
	2	0.080	7.156	21.500	7.189
	3	0.071	5.914	27.414	1.241
Total Inertia = 1.203					
1999	1	0.166	13.471	13.471	***
	2	0.097	7.882	21.353	5.588
	3	0.074	6.030	27.382	1.852
Total Inertia = 1.234					

Figure 2 examines the location of responses to different attitude questions on the first and second axes, in 1981, 1990 and 1999. We position the two axes in the way that best correspond to Inglehart's diagram, which gives an illusion that the values are always changing towards the top-right corner. While Inglehart never indicates the eigenvalues (= how much of the total variance each factor scale explains) alongside with his diagram, he did indicate on one of his diagram the vertical axis as the first factor and the horizontal axis as the second factor (Inglehart, 1997: 98). We position our diagrams in the same manner, so that the top-right corner roughly corresponds to Inglehart's 'secular / self-expressive' quadrant, and the bottom-left corner roughly corresponds to his 'traditional / survival' quadrant. For 1981, at the top right hand corner, there appear to be a series of libertarian responses (with support for prostitution, suicide, abortion, homosexuality, and divorce). These are counter-posed to their opposites on the bottom-left corner. On the top-left corner, which should represent 'secular' and 'survival' values, there are a series of responses indicating support for collective protest, mainly for 'left wing' causes. One interpretation of these findings might be that rather than this endorsing the centrality of the materialist – post-materialist (or 'survival – self-expressive') dimension, it suggests a rupture between 'alternative', radical views and conformist ones.[13]

These results endorse Flanagan's (1987) multi-dimensional interpretation of attitudinal space. Flanagan argues that there may be 'libertarian – authoritarian', 'new politics – old politics' and 'new left – new right' cleavages. The attitudinal spaces presented in Figure 2 seem to show the 'left – right' (or 'conscientious/rebellious – conformist') dimension along the top-left – bottom-right diagonal and the 'libertarian – authoritarian' dimension along the top-right – bottom left diagonal.[14]

Figure 2: Dimensions 1&2, defined by 42 modalities, and supplementary materialist - post-materialist positions
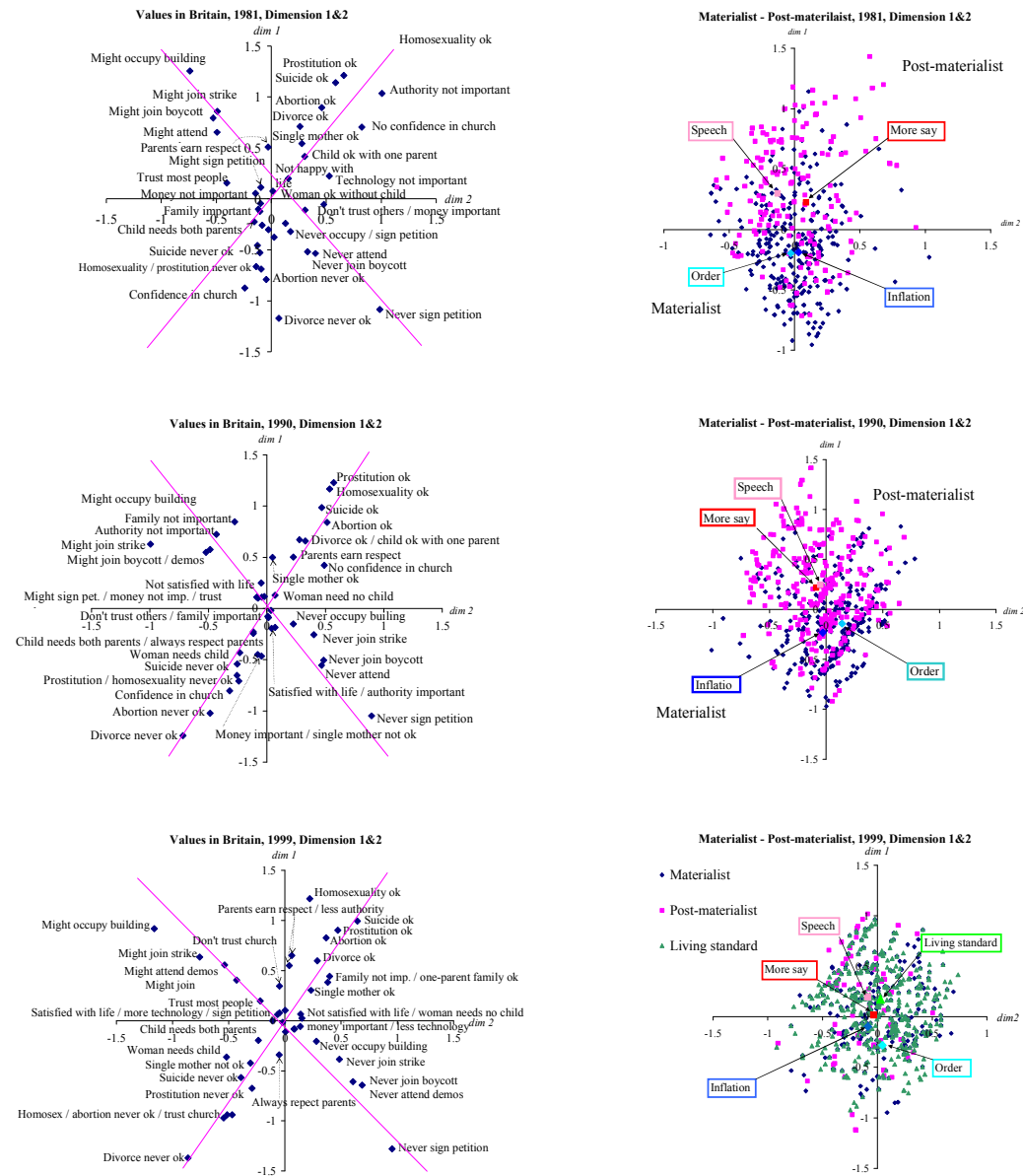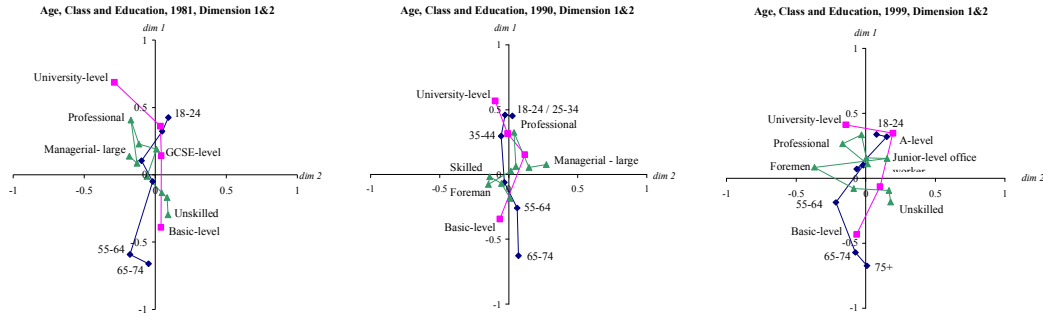

Figure 2 shows that this distribution of attitudes changes does not change significantly in 1990 or 1999. There continue to be the libertarian attitudes in the top right, the collective protest variables in the top-left, and on the bottom the variables include both opposition to protest and more authoritarian attitudes. As we go back to the summary statistics for the three dimension, we can see that the importance of the third axis and other unknown dimensions have increased while the explanatory power of the first two dimensions declined over the twenty years (see Table 5 above).[15] This means that the variance which is not explained by the libertarian-authoritarian and conformist – conscientious/rebellious dimensions, may be getting more important. The value space seems to have become more complex and diverse, as individuals became increasingly discerning and differentiating themselves from the known and familiar cleavages of cultural values.

We can now move to look at the panels on the right hand of Figure 2 to assess how these attitudes relate to the aims of the country that Inglehart himself focuses on. In this analysis, the national priority variables are passive and have no contribution to the axes themselves. What we can do is to superimpose the locations of the national aim variables on the attitudes plotted on the left hand panels. This shows a number of important findings. Firstly, the four measures tend to spread out in the four quadrants: 'freedom of speech' is in the 'conscientious/rebellious' quadrant, by our interpretation, or 'secular / survival' juxtaposition by Inglehart's interpretation; 'giving people more say' is found in our 'libertarian', or Inglehart's 'secular / self-expressive' corner; 'fighting inflation' features in our 'conformist' or Inglehart's 'traditional / self-expressive' quadrant; and 'maintaining order' represents our 'authoritarian' or Inglehart's 'traditional / survival' combination. On the face of it, both his and our interpretations of the two axes seem to correspond well to the four measures, but a crucial misfit in Inglehart's interpretation can be found in the positions of the two post-materialist measures and the two materialist measures which are not separated by the 'survival – self-expressive' scale, i.e. the materialist – post-materialist scale, but by the 'traditional – secular' divide, which is the foremost important dimension that explains 16 per cent of the total variance. In comparison, the second 'survival – self-expressive' scale explains only 6 per cent of total variance. (See Table 3) As Inglehart revised his analytical technique in his 1997 book to recognize that there are two scales, (survival – self-expressive and traditional – secular), he may have realized this weakness of materialist – post-materialist argument, although he does not explicitly state this.

The weakness in his argument became more revealing when the European-side of the World Values Survey operation introduced 'improving standard of living' as the fifth possible national priority that respondents could define. In the 1999 diagram we see that the 'standard of living' option was more appealing to those in the 'libertarian' corner, while 'giving people more say' moved to a more neutral position. This is a strong indication that certainly in 1999, the materialist – post-materialist indicators used by Inglehart are not distinguishing the main axial principles differentiating respondents' attitudes.

Figure 3 superimposes on this two-dimensional space a range of socio-demographic variables, so that we can assess how far the attitude clusters we have delineated in Figure 2 are associated with specific socio-demographic positions. Highly qualified professionals occupy a similar location to those who support collective protest values, whilst the working class tend towards more materialist sectors. In apparent support of Inglehart's own interpretation, younger age groups are located towards the right hand side of the figure. However, at least as important is the class dimension, with the poorer groups being located in the more authoritarian left hand of Figure 3.

Figure 3: Supplementary positions: class, age, and educational level

Age, Class and Education, 1981, Dimension 1&2

Age, Class and Education, 1990, Dimension 1&2

Age, Class and Education, 1999, Dimension 1&2

The left-top – right-bottom diagonal seems to represent both class and educational scaling in 1981. While the class dimension seems to be mixed in 1999, two horseshoe patterns emerge for educational scaling and age scaling, which may be related to the 'old left' type from 'libertarian' type in Figure 1 for 1999. We can conclude our discussion by noting that, firstly, the distinction between materialist and post-materialist values does not usefully summarize a much more complex set of attitudes. Any apparent shift towards post-materialism in the UK is an artefact of research design and in fact there is significant stability in values and attitudes between 1981 and 1999.[16] Secondly, we can also see relative stability between 1981 and 1999, with a distinction on the first axis between being conformist and being rebellious, and on the second axis between being individualist and collective. Inglehart's distinction between materialism and post-materialism unhelpfully conflates these two different axes and de-politicizes them.[17]

4: Factor analysis and correspondence analysis

In the final part of this paper, we consider further how we can explain the structure of values in Britain, using factor analysis and correspondence analysis in comparison, and lead to our striking conclusion in the end. Inglehart's materialist – post-materialist measures have received extensive criticisms, as discussed in the previous section. Our findings support Clarke's claim about the growing irrelevance of questionnaire design over time, and also Davis and Davenport's claim that the measurement of individual attitude differ from the variation observed at the macro-level. Indeed, as we further ran probit regressions on materialist – post-materialist measures, using the 21 questions which we used in our correspondence analysis as the explanatory variables, we found a similar inconsistency of the measures in accordance to Davis and Davenport's findings (see Appendix 2). Inglehart and Abramson (1999) tried to win the argument over technicality of the various regression models, but by the time of Inglehart and Welzel (2005), he admitted that there are micro-macro level inconsistencies in his data, but he insisted that those inconsistencies are not a problem for his theorization. He argues that the micro-level inconsistencies are due to various 'measurement errors', and that the macro-level aggregation and the use of central tendency (i.e. the population mean) provide more stable and superior measurement than the micro-level measurement of individual responses. He thus justifies the use of factor analysis at the national aggregate level.

We here argue that his fixation on macro-level analyses blinds him from looking at intra-societal-level diversity, and by doing so, undermines his own individual-level theorisation and trajectory over time, based on micro-level reasoning. We see that Inglehart's modernization trajectory, i.e. from materialist to post-materialist, or from 'acquisitive' to 'post-bourgeois' values, as he thought up in the early 1970s, has become increasingly irrelevant to people's real values and concerns, despite Inglehart's consistent effort to fit his data around this model. The British data tell us a different story to that which Inglehart likes to believe. We use Inglehart's data, i.e. the British responses to the World Values Survey, his 10-item measurement as in Table 3, and his tool of analysis, i.e. factor analysis, at an intra-societal level. The 10 items were re-selected by Inglehart in part response to the mounting criticism on his materialist – post-materialist measurement, and were used to construct a space defined by the 'survival – self-expressive' and the 'traditional – secular' scales, as we discussed above. We used the same measurement and ran factor analysis of the mean response at the level of intra-societal subgroups, i.e. age groups, occupational classes, educational levels and political parties, just as Inglehart ran factor analyses of the mean response at the national aggregate level. We compare the result with those derived by correspondence analysis using equivalent dichotomous measures.[18] Figure 4 shows the two results in comparison.

Figure 4: Factor Analysis and Correspondence Analysis, 1999
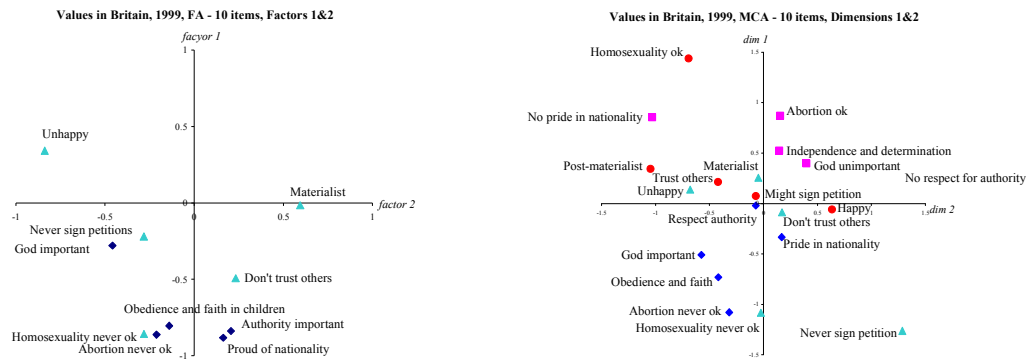
What we see here in the factor loadings is that Inglehart's 'traditional' values (in the shape of diamond) and 'survival' values (in triangle shape) are not separating out; and moreover, one of his core 'survival' value, i.e. 'materialist' value, is located in the 'self-expressive' or 'post-materialist' end of the spectrum. 'Lack of trust' is also featuring in that region. However, if we look at the result from the correspondence analysis on the right which shows a remarkable similarity to that on the left panel, our puzzle gets solved quickly. This is because it is easier to make sense of the map of correspondence analysis due to dichotomous sets of modalities which are located in relative distance to one another. If we recall the map of cultural values in 1999 in Figure 2, we see notable resemblance between the two diagrams – one constructed by 42 modalities and the other by 20 modalities.[19] Our interpretation of the four corners – libertarian, authoritarian, conformist and conscientious/rebellious – seems to apply to this diagram based on the 10-item battery.

If there could be any doubt in the position of each value, the coordinates for 'unhappy feeling' and 'materialist value' along the second axis first come to the attention of the viewer. For Inglehart, the horizontal axis represents 'survival – self-expression' or materialist – post-materialist measures. However, we can see here that the 5-item-battery-based 'materialist –

post-materialist' indices, which we examined in the previous section, are positioned exactly in the reverse order to what Inglehart might have expected. We believe that this positioning is more accurate, because this materialist measure includes 'improving standard of living' as a choice for national priority, making this closer to the real concern of the Britons in 1999. Then it becomes puzzling that 'post-materialist' value is positioned close to 'unhappiness', and that 'materialist' is positioned on the side of 'happiness', while Inglehart's latest modernization theory binds 'materialist' value and 'unhappy' feeling together as a group pf 'survival' values. We believe, however, that our interpretation of data structure more closely represents people's concerns than Inglehart's deductive theory.

Here we must mention that in 1999 the European World Values Survey operation slightly changed the wording of the 'happiness' question: 'All things considered, <u>including the environment</u>, how happy are you?' The 'unhappy' feeling, therefore, taps more into people's conscientious values, which fits suitably among other values in the top-left corner together with 'post-materialist values, i.e. 'giving people more say' and 'freedom of speech' as we discussed earlier.

Figure 5: Demographic Subgroups: Factor Analysis and Correspondence Analysis, 1999

Let us now examine how intra-societal subgroups map onto this attitudinal space. Firstly, we confirm the similarity between the two maps produced by factor analysis and correspondence analysis. Factor analysis proceeds by computationally factoring out population means of the 10 variables for each subgroup; whereas correspondence analysis proceeds by computationally calculating relative distances among 1000 individual respondents in terms of the 20 dichotomous choices, and then by superimposing mean coordinates for each subgroup based on the positions of individual respondents. In both maps, younger people cluster in the top-right corner, and older people in the bottom-left corner; university graduates and professional workers in the top-left corner and manual workers in the bottom right quadrant. However, the most striking feature concerns political party support: while Labour supporters and Conservatives cluster around lower-centre of the diagram, Liberal Democrats and Green Party supporters feature in the top-left quadrant. Considering the 'happiness' question that includes environmental issues, the positions seem to accord well to contemporary political map of Britain.

Finally, following Inglehart and Baker's (2000) attempt to visualize changes over time with their national aggregate data, we run factor analysis of the 10 items in two time points, i.e. 1990 and 1999, to assess the direction of changes intra-socially, as shown in Figure 6.[20]

Figure 6: Changes Over Time, Factor Analysis, 1990-1999
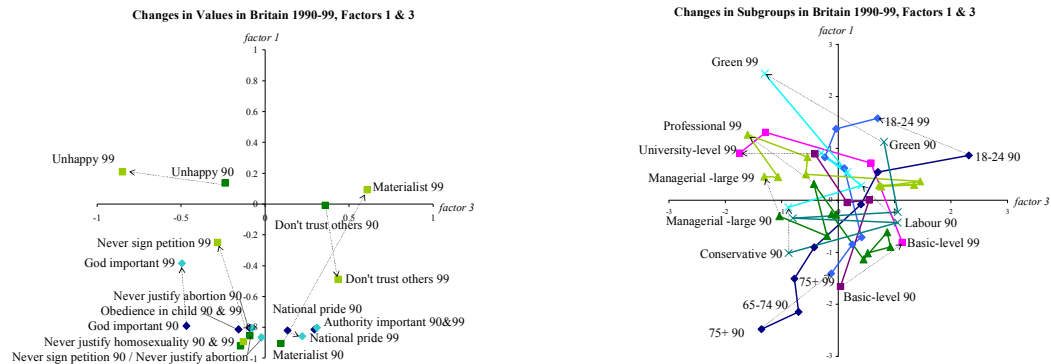
The map shows how the relative factor loadings of five 'survival' measures and five 'traditional' measures changed over the nine years. The vertical axis represents the third factor in this diagram because the second factor only picks up the large discrepancy between the two survey results, but by turning around the three-dimensional space, the third factor picks up the changes over time in a comparable way. The movement in the positions of 'unhappy' feeling and 'materialist' values over the nine years accord well to what we have already described in Figure 4.

The more striking representation is found in the movement of the positions of the subgroups. If we recall Inglehart's theory of inter-generational values change, younger people are expected to lead the modernization of attitude and values towards 'secular / self-expressive or well-being' corner where Sweden, Norway, Germany, Netherlands, Japan and Switzerland appear in his world values map. (Figure 1) Inglehart and Welzel (2005) also shows a values map of different age groups from 15 countries with a notable stretch of British age groups, ranging from age 65+ on the bottom-left to age 18–24 in the top-right corner. Inglehart's mistake is that he calls this stretch 'the intergenerational effect', although this actually represents only the age effect at a particular cross-section of time. In order to see the real effect of birth-corhorts, we need to examine the changes in the positions of age groups over time, as we show in Figure 6. Our striking conclusion is that over the nine years, young people's values have moved towards the 'rebellious/conscientious' corner and not towards the 'libertarian' or 'secular / self-expressive' combination as Inglehart suggested. It is not only the young people, but also those under age 45, Green Party supporters, professional workers and university graduates, who have become more rebellious and conscientious and less individualistic and liberal over time. Yet, some group of people have moved in the opposite direction, too. Those include older people, manual workers and early-school-leavers. They have become relatively more liberal and less authoritarian.

Although it will require a longitudinal survey to further assess this inter-generational effect, it is remarkable that we arrived at a different conclusion, using Inglehart's data, his choice of variables and analytical tool. People's values in Britain have changed over time in the opposite direction: not towards the libertarian end but more towards ethical and conscientious concerns over the 1990s, and this direction of movement is most strongly observed among the younger generation.

Conclusions

In this paper we have shown the value of engaging with the work of Ronald Inglehart as a means of developing our understanding of contemporary cultural change. Inglehart's work represents the most empirically developed rendering of the kinds of conventional sociological arguments concerning the rise of reflexive, self-expressive, and individualized values which are associated with the theorisations of Beck and Giddens. Our demonstration of the weakness of Inglehart's framework therefore has major implications for sociological analyses of socio-cultural change.

We have shown that the problem with Inglehart's analysis is in its comparative focus: He does not explore the details of any one national case in sufficient detail to allow us to assess whether attitudes and values can best be captured through his use of unitary indicators such as the materialist – post-materialist measure. By conducting intensive research on British data in 1981, 1990 and 1999 we have lent further support to the arguments developed by several of Inglehart's critics using data from other nations, who claim that his measures are not robust.

Three main points stand out in conclusion. Firstly, we have shown that the materialist and post-materialist measure does not usefully summarize what is actually a much more complex cluster of attitudes and values in the British population. This is evident both from our correspondence analysis, and also from our factor analysis which show that specific attitudes are not always associated with the materialist and post-materialist national priorities in the way that Inglehart argues.

Secondly, once we recognize this complexity we can also demonstrate that the supposed shift towards post materialist values that Inglehart claims for the British case is in fact an artefact of his questionnaire design and his deductive theorization. The introduction of a question about the standard of living being a 'national priority' changes any apparent shift towards the post materialist measures. If we investigate trends for those specific questions which may tap such a shift, then no clear pattern emerges.[21]

Thirdly, what we do see is persistence in a more complex structure of attitudes which distinguishes those with more conformist from more conscientious/rebellious views, and those who are more collective from those who are more individualistic. This distinction is robust in 1981, 1990 and 1999, and has the attraction of drawing attention to the stable political framing of attitudes. Therefore, rather than lending credibility to an evolutionary account of value change, this suggests the persistence of enduring politically engaged attitudes during the 1980s and 1990s.[22]

The implications of our findings are important. Inglehart, we have argued, gives one of the most robust quantitative accounts for the kind of value changes which are consistent with the claims developed in much social theory. If it turns out that his account if flawed, then this has implications too for our understanding of socio-cultural change which pose an important challenge to contemporary theoretical orthodoxy.

Appendices

Appendix 1: Socio-demographic profile of respondents

		1981	*1990*	*1999*
Gender	male	47.1	46.6	43.7
	female	52.9	53.4	56.2
Birth cohort	1900–1934	32.8	34.7	15.9
	1935–1944	13.0	14.2	11.4
	1945–1954	17.1	18.1	14.3
	1955–1964	33.8	18.9	20.2
	1965–1974	-	13.3	22.4
	1975–1982	-	-	12.9
Age group	18–24	28.4	12.3	12.9
	25–34	20.0	19.0	22.3
	35–44	13.4	18.3	20.2
	45–54	9.9	14.4	14.3
	55–64	11.5	14.4	11.4
	65–74	9.1	11.9	9.3
Age left school	12–15	43.1	43.5	26.6
	16–17	34.8	35.5	38.9
	18–20	10.2	9.3	10.5
	21+	11.7	10.8	10.6
Job of household head	Managerial - large	1.5	7.7	6.9
	Managerial - small	7.2	7.1	4.7
	Professional	12.8	11.5	10.6
	Supervisor	12.8	11.0	10.2
	Non-manual	4.5	4.4	3.9
	Foreman	3.7	4.7	4.3
	Skilled	25.8	26.3	21.5
	Semi-skilled	10.2	8.3	6.8
	Unskilled	10.8	14.0	11.6

Income scale	1- the lowest	1.9	7.3	3.9
	2	3.9	5.0	5.8
	3	4.8	7.1	6.5
	4	4.1	6.5	8.4
	5	5.6	7.0	11.2
	6	5.8	7.9	10.3
	7	8.8	5.9	11.5
	8	8.6	7.3	8.0
	9	13.4	7.0	2.8
	10 – the highest	-	13.2	.2
Marital status	Single	29.1	17.7	26.5
	Married	59.9	65.7	50.6
Number of children	0	40.7	28.1	24.7
	1	15.9	15.6	13.7
	2	23.6	30.2	29.9
	3	11.0	15.6	18.0
	4	5.2	5.5	7.5
	5+	2.0	2.5	3.2
Total number		**1231**	**1484**	**1000**

**Appendix 2: Explaining the stability of values in Britain**

Here we consider further how we can explain the structure of values in Britain using Probit models. Inglehart and Abramson (1999) produced a set of regression analysis in response to Davis and Davenport's (1999) claim that the measurement of individual attitude differ from the variation observed at the macro-level. While Davis and Davenport used materialist – post-materialist index as the dependent variable in their regressions, Inglehart and Abramson argued that the use of the broad, dichotomous categories may systematically weaken the explanatory power, and used the four-item and the twelve item index instead as the dependent variables. However, theoretically, Inglehart's materialist – post-materialist index should capture the supposed polarity, which Inglehart had evidenced using factor analysis of twelve-item questions.

This section uses both materialist – post-materialist index and the four-itemed question for national priority as dependent variable. While Inglehart and Abramson seemed to have ignored the non-linearity of the distribution of the four and the twelve choices and used OLS regression to estimate the sequence of materialist to post-materialist concerns, this section uses binary Probit model to estimate the probability of individuals choosing materialist or post-materialist options separately, and each of the four-options for national priority. Explanatory variables are the binary attitude variables which are summarized in Table 2 and socio-demographic variables which are summarized in Table 3. In order to avoid co-linearity problem and to avoid loosing many observations due to substantial missing values, income variable was not included.

Individual respondents are assumed to face a binary choice between agreement to the statement ($y_i > 0$) and disagreement ($y_i = 0$) when faced with the questionnaire. The probability of any positive outcome ($\text{Prob}(y_i > 0)$) is estimated, using the cumulative normal probability function, which in effect indicates the attitudinal orientation measure. The estimates for the Probit equation is computed by maximizing the logarithms of the likelihood function:

$$L = \prod_0 \left\{ 1 - \Phi\left(X_i \cdot \beta_1 / \sigma\right) \right\} \prod_+ \Phi\left(X_i \cdot \beta_1 / \sigma\right)$$

Figure 1A: Binary Probit analysis of materialist - post-materialist choices
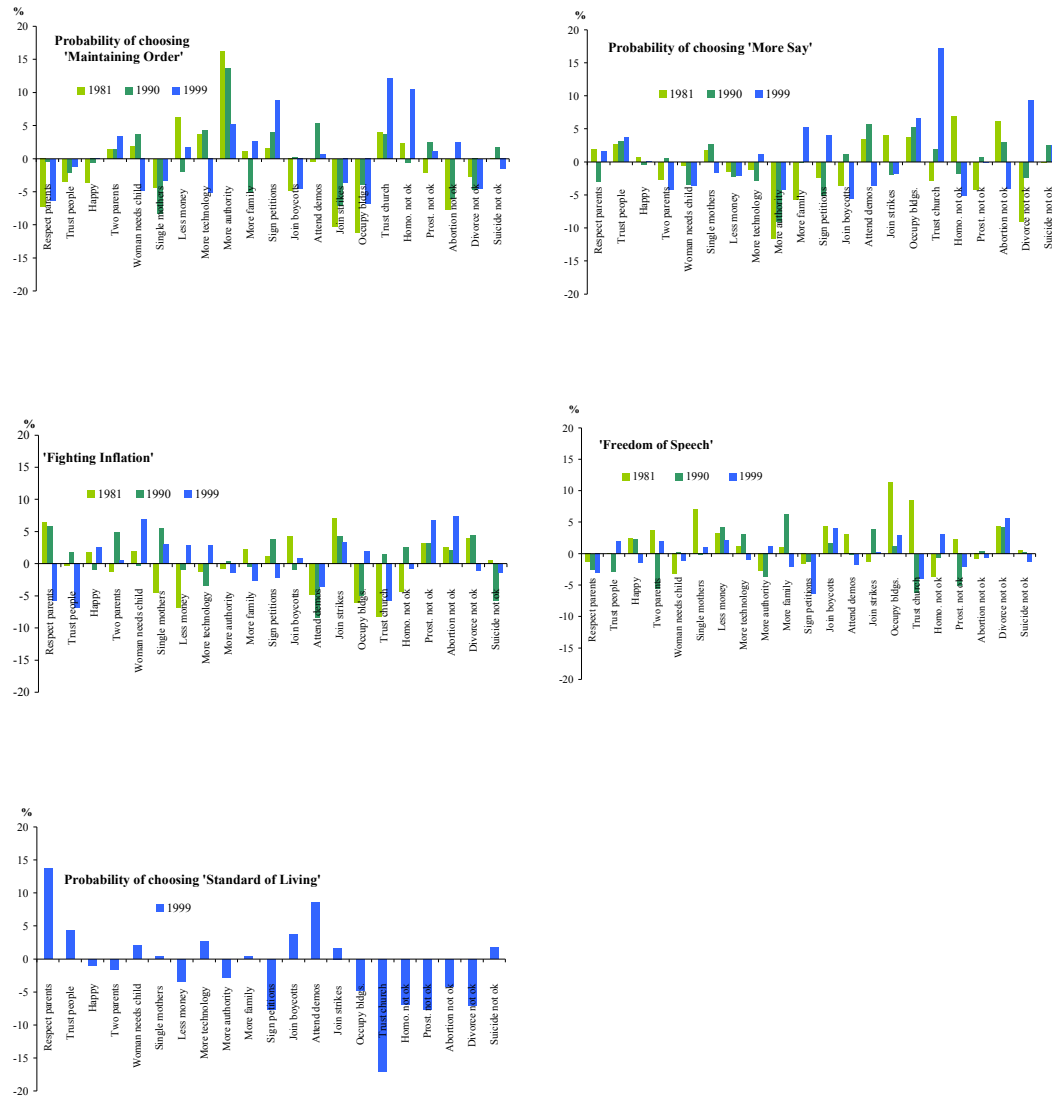
Highlighted coefficients are those which are statistically significant. What is especially interesting is to see how many specific attitudes do not map onto the materialist and post materialist measures in the way we might expect. Thus we can see that post materialists are more likely to respect parents, say that women need children to feel fulfilled, say that the family is important, are not likely to sign petitions, are likely to trust the church and are likely to say that divorce is not OK. There is the remarkable finding that materialists in 1999 are more likely to say that money is not important, and are less likely to trust the church. People who chose 'order' as the top national priority also tend to think that 'money is not important'. These multiple inconsistencies lend support to the view that the measures of materialism and post materialism do not serve as useful proxies for what are actually more complex and variegated attitudes.

Furthermore, if we examine the consistency of the attitudes on the materialist and post materialist values between 1981 and 1999 we can see that most of them change direction at some point in the three years that are studied. Of the 21 attitudes we examine, only four have consistent effects on the measure of materialist values in 1981, 1990 and 1999, names those who disagree that the family is important, being unlikely to join strikes, agree that homosexuality is not OK, and disagreeing that divorce is not OK. There are six consistent attitudes which correlate with being post-materialist, namely those who think single mothers are OK, thinking that authority is not important, have not signed petitions, have attended demonstrations, occupied buildings, and trust the church. This is further indication that there is no stable measure of materialism or post-materialism, and that we are advised to recognize the continued complexity of the attitude structure rather than reduce this to a simple unitary measure.

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[1] His own research evidence prepared in collaboration with a sociologist refuted that his earlier claims (Inglehart and Baker, 2000). As we will discuss later, Britain in particular has become more materialistic.

[2] Edward Thompson's (1973) analysis of the moral economy of the English poor in the 18th century, Barrington Moore's (1977) study of injustice and Zygmunt Bauman's (1988) writing on the values of holocaust victims all make the point that the values of the most deprived populations are still anchored in a cultural framework.

[3] Inglehart does defend versions of evolutionary thinking (see Inglehart 1997: 16) but this is akin to the attraction of heterodox economists to evolutionary approaches and should be interpreted as a sign of his relative distance from mainstream economics and political science.

[4] In many nations surveys were carried out by members of the Gallup group, and the project of running these comparable surveys was thus a means of elaborating the global reach of this opinion polling company.

[5] This emphasis on generational replacement as the motor of cultural shifts has attracted considerable interest – Robert Putnam's (2000) arguments about declining social capital in America being linked to the end of the 'war generation' being a case in point. However, unlike Putnam, who implicitly celebrates the civic engagement evidence in 1950s small town America where 'mother baked cherry pie', Inglehart offers a more measured and critical account. He explicitly disputes Putnam's 'erosion of social capital' thesis by arguing that although conventional voluntary organisations might be losing members, 'these same publics are becoming more likely to engage in types of action that do not leave written membership lists, because they are elite challenging activities that emerge from loosely knit but wide ranging civic networks' (Inglehart and Welzel 2005: 118).

[6] Inglehart does not distinguish different nations within Britain, and since we wish to engage with his arguments we also use the UK as a unitary case, although we are certainly not committed to the idea that there are not important national differences within the UK.

[7] Inglehart's favourite way to present this dual scale is by grouping nations according to Samuel Huntington's claims about cultural differences. He shows that Britain is in the group of 'English speaking nations' which scores highly on self expression values, but not highly on secular values. In fact, inspection of Figure 1 shows that actually Britain seems rather closer to several of the nations as part of 'Catholic Europe' (namely, Austria, Luxembourg, Belgium, France and Italy) in being rather more prone to secular values than the English speaking nation. It is however some way apart from the more secular nations of Protestant Europe which one might think it should be closer to given the dominance of Protestantism. In this analysis, Britain therefore does not fit neatly into the family clusters that Inglehart identifies.

[8] Clearly, this diagram was not Inglehart's most favourite, as it was not included in his most recent book (Inglehart and Welzel, 2005), and he had conveniently erased the memory of this diagram when

he was questioned about this inconsistency by the present author at European Association of Survey Researchers conference in 2005.

[9] Whether this is actually the case is the crucial issues that we need to examine in the British case. Insofar as attitudes and values appear difficult to group, then this is an indication that Inglehart's approach is problematic.

[10] In fact, it is not clear that this is so: having a strong defence force may be much more significant for one's sense of belonging to a nation than it does to one's own physical safety, but this is a point we will leave to one side for now.

[11] Inglehart and Abramson (1999) argue that their four-item and twelve-item batteries provide consistent results even when they used the individual dataset of the US segment of World Value Surveys.

[12] Inglehart uses ranking of the top two priorities in order to avoid the problem of 'response set' which is associated with rating. Inglehart and Abramson (1999) claims that factor analysis can be used with ranked (or ipsative) data, although Davis and Davenport (1999) claims that they should not be used because the choices are not independent.

[13] This interpretation is especially supported because the libertarian responses are grouped close to responses indicating that respondents have occupied buildings.

[14] Another interpretation is that the attitudinal space is showing a uni-dimension of 'libertarian – authoritarian' scale through its horseshoe pattern of cloud in the dimensions 1 and 3, which is not shown here for space limitation. Le Roux explains that the horseshoe shows the Gutteman effect which is associated with diagonal scaling on the data matrix.

[15] The 3rd axis (not shown) adds the depth of the space to the two dimensional space presented in Figure 1. The cloud of responses is in a parabolic shape, which, according to Benzecri, shows a scale of frequency. The depth represents deviation from the common cleavages and the frequently observed values.

[16] We must also note that our individual-level result is also a product of the selected 21 questions.

[17] But, on the other hand, we might note that, by choosing the questions that constantly existed since 1981 survey, our selection of 21 questions are biased towards those related to political attitudes, possibly because Inglehart, as a political scientist, was more interested in political cleavages earlier in his academic career.

[18] Factor analysis is run on the mean response, for example, of the 4-scale choice, varying from 'God is very important' to 'God is not at all important'; while correspondence analysis is run on the dichotomous choice whether or not God is important. Therefore, there are twice as many modalities/scores in the result of correspondence analysis, compared to factor analysis.

[19] We could therefore say that Inglehart's claim for 'efficiency' in the minimal number of items may somehow be justifiable. At first sight, however, the visual impression may be quite different between the 10-item and the 21-item analysis. This is because only one dichotomous choice, i.e. whether or not to sign a petition, out of a group of five variables which featured strongly along the 'conscientious/rebellious – conformist' diagonal in Figure 2, was selected for the 10-item battery. Also, out of a group of five variables which featured strongly along the 'libertarian – authoritarian' diagonal, only the choices of justifiability of homosexuality and abortion were selected in Inglehart's economized 10-item battery.

[20] The data for 1990 was used because the 1981 questionnaire did not include comparable question on political party support.

[21] Seemingly more sophisticated dual-scaled measure of 'traditional – secular' and 'survival – self-expression' does not bring our understanding of culture shifts beyond the confinement of the questionnaire design.

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[22] We also found that diversity in individual level responses have become increasingly complex, which require more research attention than simply neglecting them by averaging out at a national aggregate level.

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