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An exploration of subjective valuations

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Abstract

Do self-reported evaluations of individual statuses such as life satisfaction or material wellbeing provide a reliable basis for tracking development over time or evaluating interventions? In this paper we explore the complex relationship between objective and subjective indicators using two diverse sources of evidence– a survey of 3,883 undergraduate students in eight economically developed and developing countries and 310 adults in the Dominican Republic. The findings underline the importance for development researchers of gaining a deeper understanding of what subjective data really tell us, alongside a richer conceptualisation of individual emotions and states of mind.

Introduction

The use of subjective data by development researchers is based on two main assumptions: that people can give accurate accounts of their experiences, for example, their satisfaction with their housing, and that they can make judgements about their lives as a whole. Campbell (1981:23 in Schwartz and Strack, 2004) describes how researchers assume that 'all the countless experiences people go through from day to day add to (...) global feelings of well-being, that these feelings remain relatively constant over extended periods, and that people can describe them with candour and accuracy.' But is this assumption correct? The work of both Schwartz (a psychologist specialising in 'social judgement' research) and Kahneman (a psychologist and Nobel Laureate in Economics) suggests that this may not be the case, or at least, that producing judgements of wellbeing in response to a specific question, e.g. about satisfaction with life as a whole, may be more complicated than it appears. For example, Schwarz and Strack (2004:2) observe that 'reports about happiness and satisfaction with one's life are not necessarily valid read-outs of an internal state of personal well-being. Rather, they are judgments which, like other social judgments, are subject to a variety of transient influences'. This suggests that judgements of life satisfaction cannot be used properly without a parallel investigation of the information that people draw on to decide whether they are satisfied or not[1], an important consideration given growing

1 In fact, Schwartz and Strack (2004:16) pessimistically conclude that 'global questions about life-satisfaction are more likely to teach us about the dynamics of human judgment than about the conditions of a happy life'.

interest in the measurement of subjective wellbeing among development researchers. As we discuss later, Kahneman's work also questions the accuracy with which individuals can judge their satisfaction with their life as a whole –e.g. Kahneman *et al*. (1997, 2004) and Kahneman and Krueger (2006). For example, Kahneman et al. (1997, 2004) draw on experimental research to show that individuals' global retrospective assessments consistently violate the logic of temporal integration due to imperfect recall of past events, neglect of their duration and the effect of factors such as recent events, present mood, current weather, etc. It follows that 'people are apparently unable to produce accurate and unbiased evaluation of experiences that extend over time' (Kahneman et al., 2004:430).

This paper addresses a crucial question for the huge body of research that rely on self-reported data - are respondents good informants? Some of the implications of this question are methodological, for example, if people's satisfaction with their income correlates highly with their income then researchers could ask a single question in a household survey rather than administer lengthy sections on consumption, complex asset indices, etc. (it should also be kept in mind that judgements of satisfaction with income often reflect relative rather than absolute income, c.f. Easterlin 1974). Some of the implications are normative – if what people say they value does not actually influence their wellbeing, then it could mean that we do not need to take people's values into account, for example, in weighting indices of poverty, wellbeing or human development, or that people value things for reasons other than their effect on their own wellbeing.

In answering these questions we draw on the bodies of literature outlined above and look at other factors influencing the way people respond to surveys such as adaptation. We then test these ideas against two empirical examples; the first dataset raises questions about how people respond to enquiries about their perceived standard of living and experience of material hardship using data from students in four high-income and four low-income countries. Students in high-income countries and/or with 'white collar' parents (i.e. occupation business-academic-professional) are more likely to perceive their family's standard of living as high than those in low income countries and/or with parents who are manual workers or unemployed. However, they are also more likely to perceive their family as having experienced frequent material hardship than those in low income countries and/or with parents who are manual workers or unemployed. To what extent can this apparent paradox be explained by adaptation or social comparison theories? The second dataset allows the exploration of overall life satisfaction (i.e. how satisfied are you with your life as a whole?) using an array of indicators concerning the four wellbeing domains of health, education, housing and

safety. For each of these dimensions we have i) an objective achievement variable (e.g. years of education), ii) a dimension-specific subjective evaluation variable (how satisfied are you with your level of education?); and iii) a dimension-specific individual importance score (e.g. how important do you think education is?). As expected, objective achievement variables are robust predictors of dimension-specific subjective evaluation variables. However, the predominant role in predicting overall life satisfaction is played by the satisfaction indicators in the least valued dimensions – the contribution of demographic indicators being controlled for. We offer different explanations for these apparent paradoxes.

The paper develops as follows. In section two we review literature from psychology and economics on how people make judgements in response to a survey question. In section three we present our two case studies, first providing brief background information on the data collection and then moving to the analysis and discussion of the results. Section four concludes with a discussion of the implications of the literature and our findings for researchers working with self-reported data.

2. Literature review

In this section we review the mental processes potentially operating when respondents are asked to provide subjective indicators. In looking at how people make judgements we will focus on judgements about their satisfaction with their life as a whole due to the prominent place this particular subjective variable has in economic literature (henceforth the acronym JOLS will be used for judgements of overall life satisfaction , after Tiberius, 2004:3). We outline the role of influences such as mood, social comparison, social desirability biases, and context (summarised in Schwartz and Strack, 1999, see particularly fig 4.2). Finally, we briefly discuss adaptation and cultural/language differences in response patterns as a possible explanation of the discrepancies we observe in the empirical examples in section 3.

2.1 Making judgements

The speed with which survey questions are answered means that people cannot consider all aspects of their life in making JOLS. Clearly they need an heuristic or mental algorithm to sift the information. Other studies have shown that humans operate with a 'bounded rationality' (Simon, 1955), which does not take all sources of information into account, and are essentially 'cognitive misers' (Taylor, 1981). This means respondents tend to prefer simple heuristics such as 'how am I feeling' as an aid to judgement rather than more complex ones. So what sources of information do they chose? Below we list some of the main influences on this choice, drawing on review articles by Schwartz and Strack (1999, 2004) and Kahneman (2003).

The accessibility of information, for example, whether it is used frequently or has been used recently, affects whether it is used in forming JOLS. The most accessible information might, for example, relate to current concerns, or activities, or even to values (Schimmack and Oishi 2005). This has implications for the findings on cultural differences reviewed at the end of this section in that some values will be more prominent and thus more accessible in particular cultures. Diener and Diener (1995) and Oishi et al (1999a) have found this to be the case in relation to self-esteem and freedom, which are more strongly correlated with JOLS in nations characterised as individualist rather than collectivist. On an individual level Oishi et al (1999b) found that JOLS was more strongly associated with satisfaction with daily achievements among students high in achievement values than those low in achievement values. This suggests that valued or value-congruent domains are more influential on JOLS (but see the second empirical example in section three for a counter-example).

Accessibility of information explains why framing effects are influential on survey outcomes as the way in which questions are ordered or asked makes particular types of information accessible. For example, if people are asked to think about positive events prior to making a JOLS this influences the tenor of their response. Similarly, if they are asked a question about a specific domain of life, e.g. frequency of dating in one study (Strack et al, 1988), their performance in that domain disproportionately influences their JOLS. Schwartz and Strack (1999:63) explain that 'information that has just been used - for example, to answer a preceding question in the questionnaire - is particularly likely to come to mind later on, although only for a limited time'. Framing effects can be influential, but only when a respondent does not have more pressing concerns. For example, the experience of a painful illness is a 'chronically' accessible piece of information that might affect all evaluations, whether these are related to the illness or not. Additionally, the respondent's focus on their current illness makes it likely that the present will be the starting point for any judgement and that the past will look good in comparison, even if the past contained other problems of equal magnitude (Schwartz and Strack, 1999:69).

Accessibility of information also explains the importance of other contextual influences, even where these are relatively trivial (for example, finding a small sum of money on a photocopier prior to making a JOLS, Schwarz, 1987, watching one's football team win a game, Schwarz et al, 1987, or making a JOLS in a room that was designed to be either as pleasant or as unpleasant as possible, Schwarz et al., 1987[2]). The disproportionate effect

[2] The authors note, however, that this context effect does not extend to all areas of life – 'participants' housing satisfaction did not benefit from their good mood. To the contrary, participants reported higher

of contextual influences on JOLS have led Schwartz and colleagues to suggest that JOLS are essentially a function of the research instrument, for example, the question order or the nature of the response alternatives, and that any stability in JOLS relates to the stability of the conditions of evaluation. One example of this is the claim by Schwarz (1996) that when respondents see a list of response alternatives, for example, the frequency of television viewing, they assume this reflects the researcher's knowledge of the distribution of the behaviour and that 'normal' behaviour falls in the middle of the scale. They then not only use the response alternatives to estimate the frequency of their own behaviour, but also to assess their satisfaction with the area being measured.

Another important source of information for JOLS is comparison: intra-personal comparisons between past experiences or future expectations, or inter-personal comparisons, either upwards or downwards. Schwartz's theory of 'mental construal processes' suggests that every evaluation requires two mental representations – one of the object of the evaluation ('my life') and another of the standard against which that life is to be evaluated (e.g. 'my brother's life') (e.g. Schwarz and Bless, 1992). However, as we stated earlier, these representations are not stable, but are constructed on the spot from the information that is most accessible. In exploring how information influences JOLS Schwartz makes a further distinction between information that is *assimilated*, i.e. included in an assessment of 'my life' (this tends to be information that is more accessible such as mood), and information that is *contrasted*, i.e. forms part of the standard that my life is judged against (this tends to be less accessible information such as past experiences). An example of a contrastive effect is Elder's (1974) famous study of the great depression which suggests that children who were adolescents during that time were more likely to make positive JOLS because they had their experiences during the depression as a point of comparison.

Other psychologists such as Gibbons and Buunk (1999) have shown that the direction of comparison – i.e. whether it is downwards (usually positive in effect) or upwards (usually negative) – cannot be reliably predicted and comparisons can be used strategically to enhance mood. In relation to this Schwartz and Strack (2004:8) warn that merely knowing that someone has experienced a distressing event doesn't allow us to predict the impact of this event on their JOLS as 'we need to know whether the event comes to mind at the time of judgment and how the person uses the event in constructing the respective mental representations' (i.e. whether it is perceived as part

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housing satisfaction when they were tested in the unpleasant rather than the pleasant room, indicating that the room served as a relevant standard of comparison. After all, even a regular dorm room looked like a palace compared to our dirty laboratory' (ibid:12-13).

of their current situation, or the standard against which their current situation is judged).

Comparisons can be used for many different purposes: self-assessment (helping the respondent make a JOLS); self-enhancement (comparing downwards to make the respondent feel better about their own circumstances); self-improvement (comparing upwards to motivate the respondent, although this strategy may initially reduce subjective wellbeing); and affiliation (comparing horizontally to make oneself feel part of a wider community). The selection of comparison standards is dynamic as individuals construct a relevant social comparison standard on the spot based on accessibility of information and the aim of their comparison (e.g. to put their situation into perspective). The direction of their comparison may also be influenced by their choice of reference group, which constrains the range of possible comparisons to a cognitively manageable number. Reference groups are not stable, however, and satisfaction may decrease when people move to a different reference group through, e.g. material success (Graham and Pettinato, 2002). Finally, the direction of comparison can be manipulated, for example, Strack et al (1990) placed a wheelchair user in a room where people were responding to questionnaires to see if this increased their JOLS (it did). Comparison may be less important to JOLS than evaluations of specific domains as while comparison information and normative criteria are usually available for domains such as income it is less easy to compare one's life as whole with that of others. For this reason JOLS are usually based on mood[3].

Mood is an important factor as it both increases the accessibility of information that is congruent with the mood and directly influences JOLS. The reason for this is that mood is a popular heuristic for JOLS because there is a common assumption, even among psychologists, that one's mood represents one's overall state. For example, Ross, Eyman, and Kishchuk (1986 in Schwartz and Strack, 2004) report that mood accounted for 41% to 53% of the reasons that various samples of adult Canadians provided for their reported well-being, followed by future expectations (22% to 40%), past events (5% to 20%), and social comparisons (5% to 13%). The only exception to the pre-eminence of mood is where an experimenter implicitly questions the informational value of a respondent's current mood, for example, by drawing their attention to a possible external influence such as the weather (Schwartz, 1987). The importance of mood

[3] Rojas and Veenhoven (2011) contest this premise on the basis of Gallup World Poll data as they identify independent contributions to JOLS from an affective question about yesterday's mood and a more cognitive question about the closeness of one's life to the best possible life imaginable. Schwartz and Strack would argue, however, that the answer to the 'cognitive' question is just as influenced by mood as the answer to the affective one.

extends to whether past events are considered salient or not in making JOLS. If a past event does not evoke positive or negative feelings, it tends to be used as a point of comparison, whereas if it does evoke a particular mood, then that mood has an independent effect on the JOLS, regardless of the content of the event.

Mood or affective information is less influential on judgements of specific life domains such as work or income (Schwarz et al, 1984) because respondents tend to make specific evaluations using information from comparisons (e.g. how does my income compare with my brothers) and norms (e.g. do I have enough money to meet my needs). The implications of these findings, as Schwartz and Strack (2004:13) observe, are that 'the same event may influence evaluations of one's life as a whole and evaluations of specific domains in opposite directions' (e.g. a happy event in a particular domain can both increase a person's JOLS and decrease their satisfaction with that particular domain due to the contrast effect of this single positive event).

2.2 Cognitive processes

Insights into these processes have come from behavioural economics as well as social psychology. For example, Kahneman's earlier research[4] started from the notion of 'bounded rationality' (described earlier) to explore the systematic biases that separate the beliefs that people have and the choices they make from the optimal beliefs and choices assumed in rational-agent models (see also Sen, 1977). Kahneman's work on heuristics, biases, and framing effects reflects that of Schwartz et al and has been practically applied in exploring how people make judgements under conditions of risk and insufficient information – a common scenario in developing countries. In relation to judgement, Kahneman (2003) makes a useful distinction between intuition or habit, which is the basis for most people's judgements, and reasoning, which requires considerable cognitive effort. He observes that 'people are not accustomed to thinking hard, and are often content to trust a plausible judgment that quickly comes to mind' (ibid:1452). As described earlier in this section, information is most likely to come to mind if it is i) accessible, ii) emotionally valent, or iii) triggered by the context, prior stimulation (e.g. when a respondent to a questionnaire has been subtly or blatantly 'primed' to respond in a particular way[5]), or framing effects (e.g. the way in which information is presented). Kahneman uses this evidence to dismiss the rational-agent model, arguing that 'a particularly unrealistic assumption [...] is that agents make their choices in a comprehensively inclusive context, which incorporates all the relevant

[4] Research from the 1970s onwards is summarised in Kahneman, 2003; later research has focused on objective measures of happiness, e.g. Kahneman and Krueger, 2006.

[5] See Oishi et al's (2003) use of excitement as a prime in JOLS.

details of the present situation, as well as expectations about all future opportunities and risks' (ibid:1459).

An important bias identified by both Strack and Kahneman is the 'focusing illusion' where people place too much importance on the influence of a single factor on their wellbeing, distorting their JOLS. For example, Strack et al (1998) reports an experiment in which students were asked: (i) 'How happy are you with your life in general?' and (ii) 'How many dates did you have last month?' There was no correlation between the answers to these questions (–0.012) when students were first asked to make a JOLS, but the correlation rose to 0.66 when another sample of students was asked first about their dates. Similarly, Schkade and Kahneman (1998) describe how when asked to predict whether Californians or Mid-Westerners would be happier, respondents in both places predicted that Californians would be happier due to the better weather, even though there was no difference in their scores. The authors explain this discrepancy between perception and reality in terms of the cognitive miserliness described earlier which causes respondents to give greatest weight to easily observed differences between locations.

Schwartz and colleagues and Kahneman also explore mental accounting – the process by which respondents decide what pieces of information are relevant for their JOLS, either in describing their life as a whole or providing a standard against which it can be judged. Schwartz and Hippler (unpublished data, in Schwartz and Strack, 1999) describe how respondents impose 'category boundaries' that are often idiosyncratic, for example, students tend to see a pronounced divide between their life now and before university, which makes the latter an appropriate standard of comparison, even though the time elapsed is usually less than a year (this finding may partially explain the first of the empirical examples). Schwartz and Strack (1999:68) also note that 'judgments of SWB can be profoundly influenced by mental constructions of what might have been. Hence, the impact of a given event will be more pronounced the easier it is to imagine that things could have turned out otherwise'. This explains the well-known finding that winners of Olympic bronze medals reported being more satisfied than silver medallists, presumably because bronze medallists can imagine not having won anything at all, while silver medallists imagine having won gold (Medvec, Madey, and Gilovich 1995). It also resonates with Kahneman and Tversky's (1979) prospect theory, which argues that the value function of losses is steeper than the value function for gains so respondents give more weight to perceived losses than to gains (we will return to this point in the discussion of income). Kahneman (2003 and others) also discuss the phenomenon of 'duration neglect' where respondents fail to take into account the duration of an experience in judging its effect on their life. His well-known study of

colonoscopy (Redelmeier and Kahneman, 1996) suggested that the heuristic most people use in judging effect is a combination of the most intense hedonic moment ('peak') and the end, i.e. the 'peak-end effect'.

A final source of bias is the effect on JOLS of making these to another individual. Comprehensive reviews by Smith (1979) and De Maio (1984) observed that JOLS given in face-to-face interviews are always higher than those given in postal surveys or telephone interviews. Strack et al. (1990) extended this work with a series of experiments that manipulated the characteristics of the interviewers on the assumption that this would affect how the respondents chose to present themselves. They found that all respondents reported higher JOLS in interviews and were more likely to do so if the interviewer was of the opposite gender and less likely to do so if they believed that the interviewer had a severe disability. There may also be systematic differences in the use of contextual information to make sense of broad questions such as 'how satisfied are you with your life as a whole?' due to greater sensitivity to conversational context in different cultures (Norenzayan and Schwarz, 1999). For example, in one study comparing students in Beijing and Heidelberg (Haberstroh et al, 2002) Chinese students who were asked to evaluate a specific domain and then asked for a JOLS were more likely than German students to disregard the information they had given in response to the domain-specific question in making their JOLS to avoid redundancy. This finding was repeated when the German students were primed for collectivism rather than individualism. While all the students understood the questions, only the students from China assumed that the second question included the implied text 'aside from what you have just told me'. Language of administration is also important in evoking different response norms, as can be seen in Triandis et al's (1965) classic study of Greek students attending an American school in Greece. These differences in responding relate to the way members of different cultures interact with each other, for example, the degree of attention paid to others in social situations and to monitoring of public behaviours. For example, Schwartz et al (2011) argue that Asian respondents know more about their public behaviours than Westerners, which makes their responses to survey questions more accurate as they are less dependent on contextual cues such as the numeric value of frequency scales. Cultures that emphasize the maintenance of harmonious relationships over self-enhancement (Baumeister, 1998) may also be less likely to respond using extreme values on rating scales (e.g., Chen, Lee, and Stevenson, 1995). Nonetheless, Schwartz et al (2010:197-80) maintain that differences should not be overstated or essentialised as 'many key cultural differences in cognitive procedures do not require extensive socialization in the intellectual traditions of a culture; instead, they are better portrayed as efficient responses to culturally dominant tasks, consistent with theories of situated cognition'.

2.3 Adaptation

In the final section of the literature review we look at adaptation, defined by Frederick and Loewenstein (1999:302 in Clarke, 2012, chapter 1) as referring to 'any action, process or mechanism that reduces the effects (perceptual, physiological, attentional, motivational, hedonic, and so on) of a constant repeated stimulus'. While the concept is discussed in many disciplines, there is little cross-fertilisation of ideas and a clear separation between the positive concept of adaption in human geography (e.g. resilience, sustainability) and the more negative interpretation in social and political science (e.g. fatalism, aspirations failure, culture of poverty, etc. etc.). This section draws heavily on Clarke (2012, chapter 1) who identifies multiple processes related to adaption in developing countries. He categorises these processes as follows: Non-grumbling resignation in the face of hardship and injustice; Valiant struggle in the face of adversity; False expectations, optimism and dissonance; Hedonic adaptation; and Natural adaptation. Clarke is quick to emphasise that not all of these processes are negative, for example, struggle could involve developing compensatory abilities as Rutter (1987) found in his work on Romanian orphans. Neither is adaptation a problem solely for poor people and in earlier work (Clarke, 2007) has argued that the adaptation of the rich to their life circumstances through mechanisms such as the hedonic treadmill is a far greater problem for social and environmental sustainability.

The most relevant aspects of adaptation for JOLS are i) the psychological mechanisms that reduce dissonance between aspirations and experiences, for example, by subconsciously lowering aspirations and increasing satisfaction with life (downwards adaptation - discussed extensively by Sen, e.g. 1994), and ii) processes of hedonic adaptation, which can create dissatisfaction among the most privileged members of society (e.g. Brickman and Campbell's (1971) famous study of lottery winners). Downwards adaptation is, of course, not necessarily a bad thing, as Nussbaum (2000:137 in Clark, 2012:9) observes: 'we get used to having the bodies we do have, and even if, as children, we wanted to fly like birds, we simply drop that after a while, and are probably the better for it'. And even when adaptation has occurred it does not preclude critical reflection and action; Møller (1996 in Clark, 2012:9) gives the example of poor people in South Africa who report high levels of satisfaction, but are also able to argue and strategise for a better quality of life. Upwards adaptation is more problematic and is variously explained by a system that homeostatically maintains subjective well-being within a narrow range (Cummins, 2002) and the existence of multiple set points for different domains of life (e.g. Diener, Lucas and Scollon, 2006). The implications of these mechanisms are that increases in material wellbeing are swiftly adapted to, while

decreases in social or physical wellbeing are harder to manage. The first empirical example suggests that this may well be the case.

Specifically in relation to income, Clarke (2012) concludes[6] that '(i) richer people, on average, tend to report higher subjective well-being; (ii) increases in income are typically associated with increases in happiness, but at a diminishing rate (the statistical relationship is curvilinear); (iii) there is a low correlation between income and happiness, indicating that other factors influence happiness; (iv) raising everyone's income may not raise happiness (as ncome in comparison to others has not improved); (v) rich people typically set higher 'adequate' income thresholds than poor people; (vi) over the course of life, happiness levels tend to remain fairly static, even if income and wealth increase; and (vii) the rapid growth in the incomes of advanced economies since the 1950s has typically been associated with stable or declining happiness scores'. These findings are particularly salient when we look at the first example in section three. While these findings are mostly based on cross-sectional data, there are a number of panel studies (reviewed in Clark, 2012, chapter three) which show asymmetric patterns of adaptation where people adapt to rising incomes but not to falling ones. Consequently the happiest respondents are the ones whose income remains stable (c.f. Prospect Theory, op. cit.)

3. Empirical examples

3.1 Example one - evaluating socio-economic status

In the first study one 3,883 questionnaires were administered to undergraduate students from a number of disciplines[7] aged 16 to 79 (95% of the sample were below 28)[8] in fifteen academic institutions across eight countries.[9] Four of these were low or

[6] Drawing on reviews by Argyle (1999), Diener and Oishi (2000), Easterlin (2001) and Frey and Stutzer (2002).

[7] There were 21 disciplines: Agricultural Studies (131), Biology (102), Chemistry (102), Cultural Mediation (113), Development Studies (71), Economics and Business (1,153), Education (73), Engineering (134), Environmental Sciences (165), Journalism (35), Law (82), Law and Public Administration (67), Mathematics (45), Medicine (231), Pharmacy (297), Philosophy of Communication (40), Political Science (492), Psychology (77), Social Work (259), Social Science (97) and Sociology (117). While it was not possible to have the same disciplines in each country, we made sure that we had economists and non-economists.

[8] The analyses are run with the whole sample; the exclusion of age outliers does not affect results.

9 These are Universidad Mayor de San Simón and Universidad Católica Boliviana (Bolivia); Universidade Federal do Rio de Janeiro and Fundac¸ao Getulio Vargas do Rio de Janeiro (Brazil); Bocconi University, Università dell'Insubria, LIUC, Università di Milano and Università di Novara (Italy); University of Nairobi (Kenya); National Lao University (Laos), Goteborg University (Sweden); Université de Genève and Università di Lugano (Switzerland); and University of East Anglia (UK). Although we use the shorthand 'country', it should be kept in mind that in most cases the data was gathered from a single city.

middle income countries (Bolivia, Brazil, Kenya and Laos, LICs hereafter, 1,924 respondents) and four were high-income countries (Italy, Sweden, Switzerland and the UK, HICs hereafter, 1,959 respondents). The questionnaires were administered in supervised sessions during a lecture, typically in the first or last 20 minutes, and the response rate was over 97%. 43% of respondents were males and there was a slightly higher proportion of males in lower income countries (46% vs. 40% in higher income countries; these figures reflects the gender parity indices for tertiary education in UNESCO's (2011) Global Monitoring Report). This dataset enables us to explore the relationship between two objective indicators (students' membership of the HICs/LICs subgroups and their socio-economic status, proxied by their parents' occupation) and their response to three questions about their perceptions of their economic status (the correlation between these three variables is relatively low, ranging from .38 (perceived living standard and material hardship) to .57 (perceived income and perceived living standard) , which suggests that the questions are capturing different aspects of perceived economic status (for example, standard of living may be influenced by inherited assets, social and cultural capital, etc.):

i) *how would you evaluate the current income of your family?* (6 point, from 'very low [income]' to 'excellent')

The first question requires respondents to make a judgement about the income of their family in *absolute* terms, i.e. in terms of its purchasing power of commodities that they consider to necessary rather than in relation to the income of others. Less than 5% of respondents used the top two categories indicating higher incomes, although there was a slightly larger percentage using the top two categories in HICs;

ii) *how would you compare the standard of living of your family with that of other families in your country?* (5 point, from 'very much lower [standard of living]' to 'very much higher')

The second question requires respondents to make a judgement about their family's standard of living *relative* to other families within their country (the reference group is clearly specified, although it is possible that some students interpreted it as families they knew within their country, i.e. their social network, rather than all families). As with the first question, results are clustered in the central categories, however, there were some differences between countries in relation to use of the top two categories, e.g. within LICs 11% of respondents in Kenya put their families in the top two categories compared to 51% of respondents in Brazil, and within HICs 27% of respondents in Sweden and Italy put their families in the top two categories compared to 49% in the UK. To set this in context, the GINI coefficients of the participating countries ranged from 23 (Sweden) to 58.2 (Bolivia) and show higher levels of

inequality in the LICs, which is reflected in the distribution of tertiary education, ranging from 4 per cent in Kenya to 72 per cent in Sweden (UNESCO, 2011).

iii) *would you say that you and your family have ever experienced material hardship?* (5 point, from 'never [experienced material hardship]' to 'all the time')

While relatively few people used the last two categories in response to the first two questions, showing a common reluctance to use extreme values on response scales, 73% of respondents to the third question answered using the last two categories, indicating that they perceived their families as having experienced considerable hardship.

Tables 1 and 2 show figures for the three variables under study once the sample is broken down by country group (HICs vs LICs) and family background (whether the student has a 'white collar' mother or father – i.e. occupation business-academic-professional[10]). It can be seen that students in high income countries are significantly more likely to perceive their family's income and relative standard of living as high than those in low income countries. Similarly, students with white collar parents are (slightly) more likely to perceive their family's income and standard of living as high and this holds also when HICs and LICs subgroups are considered separately (figures not reported). While this pattern may be unsurprising, responses to the third question point to students in HICs and/or with white collar parents as having experienced more material hardship than those in LICs and/or with non white-collar parents. Table 3 shows that these results are robust to multivariate regression analysis.[11] How can this be explained?

Table 1. Subjective indicators under study by country subgroup (HICs vs LICs)

			Mean	Median	St. Dev.	n	*p*-value[d]
i)	Perceived family income[a]	HIC	3.47	3	.78	1,914	0.0000
		LIC	2.92	3	.77	1,888	
ii)	Perceived relative standard of living[b]	HIC	3.28	3	.87	1,914	0.0000
		LIC	3.04	3	.66	1,880	

[10] Our sample is equally split between having zero, one or both parents as white collar workers, with negligible differences in these proportions between HICs and LICs, although the nature of these occupations and the associated rewards may differ considerably.

[11] Two remarks are in order. Firstly, instead of comparing family background in terms of white collar vs non white collar (as in Table 2) here we increase the number of comparisons using individual dummies for three distinct categories – unemployed, unskilled job and clerical/skilled job. All of these dummies are highly significant with negative coefficient. Secondly, for each of the three dependant variables, the second specifications use individual country dummies; it can be seen that results hold for every single country with the exception of Brazil for perceived relative standard of living.

iii)	Perceived experience of material hardship[c]	HIC	4.12	4	.76	1,907	0.0000
		LIC	3.52	4	.96	1,877	

Notes. a) six-point Likert scale from 'very low' to 'excellent'; b) five-point Likert scale from 'very much lower to 'very much higher' c) five-point Likert scale from 'never' to 'all the time'; d) Wilcoxon-Mann-Whitney rank-sum test.

Table 2. Subjective indicators under study by parents' background

			Mean	St. Dev.	n	*p*-value[d]
Perceived family income[a]	White collar mother	Yes	3.35	.82	1,625	0.0000
		No	3.08	.80	1,990	
	White collar father	Yes	3.38	.82	2,164	0.0000
		No	2.94	.73	1,452	
Perceived relative standard of living[b]	White collar mother	Yes	3.29	.77	1,619	0.0000
		No	3.06	.77	1,986	
	White collar father	Yes	3.34	.76	2,167	0.0000
		No	2.93	.72	1,444	
Perceived experience of material hardship[c]	White collar mother	Yes	3.91	.84	1,611	0.0000
		No	3.75	.95	1,989	
	White collar father	Yes	3.94	.83	2,159	0.0000
		No	3.67	.99	1,442	

Notes. a) six-point Likert scale from 'very low' to 'excellent'; b) five-point Likert scale from 'very much lower to 'very much higher' c) five-point Likert scale from 'never' to 'all the time'; d) Wilcoxon-Mann-Whitney rank-sum test.

Table 3. Subjective indicators under study: multivariate analysis

	Perceived income		Perceived relative standard of living		Perceived experience of material hardship		
Explanatory variables/specifications	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HIC	.9480***		.3641***		.7923***		0.7346***
	(.0428)		(.0396)		(.0409)		(0.0495)
Mother unemployed	-.3651***	-.4087***	-.2948***	-.3729***	-.2341***	-.2120***	-.2416***
	(.0523)	(.0543)	(.0680)	(.0532)	(.0515)	(.0529)	(.0521)
Mother unskilled job	-.4439***	-.4694***	-.2742***	-.3093***	-.1443**	-.2257***	-.1895***
	(.0699)	(.0704)	(.0680)	(.0687)	(.0678)	(.0684)	(.0681)

Mother clerical/sk job	-.2255***	-.2740***	-.0922*	-.1730***	-.1331**	-.0957***	-.1628***
	(.0534)	(.0560)	(.0525)	(.0551)	(.0529)	(.0554)	(.0546)
Father unemployed	-1.2144***	-1.1527***	-.9210***	-.8200***	-.7273***	-.5828***	-.6206***
	(.0813)	(.0829)	(.0790)	(.0805)	(.0766)	(.0781)	(.0778)
Father unskilled job	-.5151***	-.5326***	-.4792***	-.4892***	-.2568***	-.2632***	-.2606***
	(.0722)	(.0730)	(.0702)	(.0711)	(.0699)	(.0708)	(.0702)
Father clerical/sk job	-.4530***	-.4554***	-.4526***	-.4347***	-.1208***	-.0980*	-.1549***
	(.0516)	(.0541)	(.0501)	(.0530)	(.0497)	(.052)	(.0513)
Bolivia		-1.1747***		-.8140***		-.5154***	
		(.0827)		(.0806)		(.0808)	
Brazil		-.6875***		-.1139		-.5391***	
		(.0802)		(.0786)		(.0796)	
Italy		.0911		-.2873***		.2159***	
		(.0790)		(.0789)		(.0801)	
Kenya		-1.3456***		-1.1220***		-1.2712***	
		(.1013)		(.0985)		(.0976)	
Laos		-.8839***		-.6019***		-.9651***	
		(.0924)		(.0903)		(.0905)	
Sweden		.0518		-.3048***		-.1953***	
		(.0852)		(.0856)		(.0867)	
Switzerland		.1642*		.0405		-.2309***	
		(.0926)		(.0925)		(.0937)	
Male	.0737*	.0994**	.1575***	.1977***	.0714*	.1276***	.1128***
	(.0391)	(.0396)	(.0384)	(.0391)	(.0382)	(.0391)	(.0389)
Age	-.0164***	-.0239***	-.0146***	-.0205***	-.0194***	-.0211***	-.0204***
	(.0051)	(.0053)	(.0050)	(.0052)	(.0050)	(.0053)	(.0051)
Economics/business	.3505***	.3500***	.3221***	.3295***	.2229***	.2195***	.2050***
	(.0424)	(.0429)	(.0416)	(.0423)	(.0417)	(.0423)	(.0421)
English							-.6281***
							(.0776)
HICxEnglish							.6074***
							(.0963)
Prob>chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log likelihood	-3523.69	-3479.64	-3714.82	-3612.47	-3895.16	-3823.55	-3862.34
N	3429	3429	3428	3428	3419	3419	3419

Notes. Ordered probit regressions, standard errors in parentheses. Baseline variables: i) for occupational dummies the baseline is business/academic, for both student's farther and mother; ii) for country dummies the baseline is the UK.

There is little doubt that for the majority of students with white collar parents the perception of a high standard of living (both absolutely and compared to other families in their country) is founded in an economic reality. As to our first subjective variable, the fact that students in HICs are more likely to perceive themselves as having a high family income compared to the perceptions of those in LICs is also likely to be grounded in existing economic differences. When we look at our second subjective variable, it is less easy to predict that students in HICs would be more likely to perceive themselves as having a higher standard of living compared to other families in their countries than students in LICs, given that processes of adaption to material goods can be assumed to operate in a similar way in both settings. These results may suggest the existence of a subconscious international reference group possibly shaped by global media or even influenced by the presence of a Western researcher administering the questionnaire (as was the case for all countries except Laos).However, it is possible that students in LICs may not know how much others in their society are earning (lack of information) or have adapted to their standard of living to such an extent that they no longer realise how privileged they are relative to the majority of people in their society (adaptation) (this proposition is confirmed by Clark's (2007) review of adaptation studies, which suggests that people adapt more easily to wealth than poverty). One example of this would be that 89 percent of Kenyan students saw their families as no better off or even worse off than other families, even though they are likely to be considerably wealthier and better-connected than the rest of the population, given that only 4 percent are enrolled in tertiary education (UNESCO, 2011).

Letting the third subjective variable enter the picture, the discrepancy between a high evaluation of current economic condition in both absolute and relative terms and a perceived greater experience of material hardship may be explained by response shift – as people evaluate their current position in relation to their past, they also re-evaluate their past in relation to their current position and the better off they are now, the more likely they are to think they have experienced material hardship in the past. Temporal distortions such as duration neglect and peak-end effect may also have an effect, causing an isolated experience of material hardship to have a disproportionate impact on people's judgements (disproportionate to the time spent in material comfort, that is). Social desirability bias may also be a factor, in the sense of 'justifying' or even 'expiating' their current privileges by pointing to their past experience of hard times.

While in absolute terms students in low income countries have a lower family income than those in high income countries, in relative terms their income may be higher, considering the high levels of inequality in many low and middle income countries together with the fact that students are likely to come from families higher up in the

income distribution than the families of non-students. Nonetheless, although some students in low income countries could be considered part of an elite, this does not explain why the finding also applies to students who do not have parents with 'white collar' jobs who have presumably struggled to attend higher education. In addition, Table 3 shows that the pattern of perceiving high absolute and relative standards of living combined with significant experience of material hardship is stronger for male students, and for economics/business students who are more likely to perceive both their family's income and standard of living and the frequency of material hardships as high (age only affected the reporting of material hardship). These findings raise interesting questions about how gender and disciplinary socialisation shape the way people evaluate their satisfaction in particular domains. As the survey was applied in multiple countries, we considered whether language might be a factor. In particular, we were interested in the implications of the translation of the expression 'material hardship' in countries with Neo-Latin or Romance languages (in our case French, Italian, Portuguese and Spanish). The dilemma was that a literal translation would have suggested an overly harsh situation of deprivation. After discussing with a number of native speakers and translation specialists we chose a translation which in English would literally translate as 'economic difficulties', although we were still concerned about a possible effect from the absence of the term 'material'. We explored the issue with a regression which includes the dummy variables HIC, English (referring to Kenya, Sweden and the UK where the questionnaire was administered in English) and the interaction term between the two (see last column Table 3). It can be seen that not only does the model improve (as to significance of exploratory variables and log likelihood), but also all of these variables are strongly significant. The coefficient of HIC has the expected sign, in line with our previous findings – also all the other variables we looked at maintain their sign and significance. The negative sign dummy for English language suggests that indeed the intrinsically harsher character of the English wording may have induced a lower propensity to claim substantial experience of material hardship. In addition, the positive interaction term signals that this pattern is less strong when the English version is administered in a high income country. These results are the same whether data from Laos, where the survey was administered in Lao, are included or left out.

3.2 Example two - extent to which people can articulate what they value

A growing emphasis on participatory needs assessments and project planning and on values within development, the themes of the 2010 and 2011 Development Studies Association conferences, has made the question of whether people can articulate what is most important to them in the slightly artificial setting of an interview or group activity increasingly salient. This study explores the discrepancy between what people will tell

an interviewer is important to them in response to a direct question, and what their other responses suggest may influence their subjective wellbeing. As we discuss, this may indicate lack of self knowledge, an inability to articulate what is really important, or perhaps a more fundamental misunderstanding on the part of researchers as to what it means to be satisfied with your life as a whole. The example presented here uses a non-probability or convenience sample in the Dominican Republic – 310 interviews carried out by one of the authors without the use of interpreters. Although the nature of the sample clearly limits the extent to which the results can be generalised to the whole country, the data collection was carried out with the aim of achieving substantial geographic and socio-economic heterogeneity. Interviews took place across urban and rural locations (the two main urban cities, Santo Domingo and Santiago, and two rural areas in the North and East) and targeted respondents aged from 18 to 79. 53% were female and educational levels ranged from 0 years of schooling to postgraduate degrees, with mean and median around 10 years of schooling. A set of demographic information was collected along with a life satisfaction variable (How satisfied are you with your life in general? 5-points scale from 'very little' to 'very much') and three variables for each wellbeing dimension of interest (education, health, housing and personal safety; descriptive statistics of these presented in Table 4):

i) an *objective achievement variable* (respectively, years of schooling, experience of illness, owning one's home and having been victim of a robbery),
ii) a *subjective satisfaction variable* (e.g. how satisfied are you with your level of education?, five point scale, negative to positive) and
iii) a *value variable* denoting the importance attached to that dimension by the respondent (value was elicited through the Budget Allocation Technique as in Moldan and Billharz, 1997, Mascherini and Hoskins, 2008 and Esposito et al., 2011).[12]

In the first place our data confirm what would be a natural hypothesis, namely that dimension-specific objective achievement variables are robust predictors of dimension-specific subjective satisfaction variables (see Table 5). For example, satisfaction with own education increases with years of schooling, satisfaction with own health decreases with experience of major illness, etc. However, when we look at overall life satisfaction a we find a counterintuitive mismatch between respondents' ranking of the importance of different dimensions and the extent to which the dimensions that were perceived as

[12] Respondents are asked to allocate a fixed amount of 40 tokens across the four dimensions according to the importance attached to these dimensions. In order to represent the dimensions under study we used black-and-white flashcards produced by a student in the School of Art at Universidad Autonoma de Santo Domingo.

important predicted their overall life satisfaction. Comparing Tables 4 and 6, it is possible to see that the role played by dimension-specific subjective satisfaction (in terms of coefficients' significance and size in the regression) is the inverse of the respondents' importance ranking)[13]. Our respondents attach most importance to health, followed by education, housing and safety, but their subjective satisfaction with safety emerges as a robust predictor of overall life satisfaction, followed by subjective satisfaction in housing, education and, lastly, health (see specifications 1-4 in Table 6).[14] In terms of other demographic variables, overall life satisfaction significantly increases with standard of living[15], being married as opposed to not being married, and being Catholic or Protestant as opposed to not identifying as religious (religion was the strongest predictor across all specifications and reflects the acknowledged contribution of religion to satisfaction with life, Clarke and Lelkes, 2005). Finally, it is interesting to note that none of the objective dimension-specific indicators is significant when used as a predictor for overall life satisfaction (see specifications 1, 3 and 5 in Table 6), despite the acknowledged importance of education as a determinant of life satisfaction (Dolan, 2007). The lack of significance may relate to the smaller sample size in this study compared to other happiness studies, suggesting the value of further empirical work in this setting.

Coming back to the mismatch mentioned above, why is it that if asked about the importance of certain dimensions people identify health and education as most important, however, their satisfaction with the least valued dimensions of safety and housing is a better predictor of overall life satisfaction? While the questionnaire did not exhaust the range of dimensions that are valuable to individuals - a task that no list can ever achieve - the four selected dimensions represent central aspects of people's life and this was confirmed by respondents during accompanying interviews. Even acknowledging the likely existence of a bias due to omitted variables, we feel that reasons for the discrepancy of least valued domains playing a bigger role as a predictor of overall life satisfaction should be searched for elsewhere. This discrepancy suggests instead that individuals may underestimate the importance of a dimension such as safety when asked to say how important that dimension is in their life. One way of making sense of this pattern is to consider the aleatory or uncertain nature of a threatening event. When asked about the importance of health and education,

[13] It should be noted that coefficient differences does not emerge as significant when a post regression Wald test is performed.

[14] In specifications 1 and 2 dimension-specific subjective satisfaction variables are entered as polytomous variables; in specifications 3 and 4 they are been replaced by dummy variables (with a value of one for being 'satisfied' or 'very satisfied') in order to account for their non interval nature.

[15] This variable is a count of a set of durables, in line with the standard of living component of the OPHI/UNDP's Multidimensional Poverty Index (see Alkire and Santos, 2010).

respondents may find it easier to imagine concrete and tangible wellbeing losses arising from failures in these dimensions. In contrast, lack of safety may be harder to imagine and individuals may be reluctant to think about threatening events or adopt optimistic stances, e.g. 'it won't happen to me', in part due to their inability to accurately predict future events. Additionally, in a setting such as the Dominican Republic where the incidence of crime is known to be high (US State Department, 2012) respondents may have adapted to this threat, which is why they do not perceive it as influencing their satisfaction with life.

Table 4. Dimension-specific indicators: descriptive statistics

		Mean	St. Dev.	Min	Max
Education	Years of schooling	9.71	4.51	0	18
	Satisfaction with own education	2.58	1.13	1	5
	Value of education	11.88	5.02	0	40
Health	Experience of major illness	.26	.44	0	1
	Satisfaction with own health	3.98	.85	1	5
	Value of health	12.40	4.83	0	40
Housing	Owning one's home	.68	.47	0	1
	Satisfaction with own housing	3.70	1.14	1	5
	Value of housing	8.56	3.61	0	23
Safety	Being victim of robbery	.271	.45	0	1
	Satisfaction with own safety	2.70	1.26	1	5
	Value of safety	7.13	3.39	0	18

Table 5. Satisfaction in each domain, role of relevant objective achievement variable

Dependent variable (satisfaction in)	Explanatory variable of interest	Coefficient and significance level	Prob>chi2	Log likelihood	N
Education	Years of schooling	.1191***	0.0000	-383.0327	292
Health	Experience of major illness	-1.0955***	0.0000	-282.3889	289
Housing	Owning one's home	.6433***	0.0000	-388.0766	289
Safety	Being victim of robbery	-.2425*	0.0000	-421.7757	294

Notes. Ordered probit regressions. Objective achievement variables are included in all regressions, so that specifications only differ in the dependent variable; further controls include gender, age, wealth, religion, location, marital status, work status, number of dependants and ethnicity.

Table 6. Overall life satisfaction: multivariate analysis

Explanatory variables/specifications	1	2	3	4	5
Subjective satisfaction variables					
Satisfaction in education	.1071	.1079*	.2077	.2358	

	(.0666)	(.0613)	(.1637)	(.1509)	
Satisfaction in health	.0269	.0709	-.0082	.0782	
	(.0990)	(.0925)	(.1793)	(.1685)	
Satisfaction in housing	.1217*	.13270**	.2536*	.2706*	
	(.0638)	(.0611)	(.1460)	(.1429)	
Satisfaction in safety	.1844***	.1662***	.4070***	.3769**	
	(.0596)	(.0582)	(.1573)	(.1537)	
Objective achievement variables					
Years of schooling	-.0041		.0022		.0090
	(.0217)		(.0215541)		(.0192)
Experience of major illness	-.1386		-.1738		-.2595
	(.1780)		(.1764)		(.1603)
Owning one's home	-.0063		.0276		.0884
	(.1556)		(.1522)		(.1472)
Being victim of robbery	-.0471		-.0392		-.0882926
	(.1522)		(.1528)		(.1469)
Demographic variables					
St. of living	.1110***	.0964***	.1116 ***	.1067***	.1248***
	(.0424)	(.0358)	(.0419)	(.0351)	(.0396)
Catholic	.4409***	.4198***	.4296***	.4023**	.3703**
	(.1633)	(.1620)	(.1620)	(.1605)	(.1560)
Protestant	.4630**	.4576**	.4647** (.1982)	.4450**	.4009**
	(.1998)	(.1982)		(.1966)	(.1908)
Other religion	-.4806	-.4827	-.4239	-.4298	-.3453
	(.4709)	(.4685)	(.4689)	(.4667)	(.4615)
Married	.2766*	.2858*	.2900*	.2910*	.2875*
	(.1656)	(.1650)	(.1634)	(.1630)	(.1585)
Prob>chi2	0.0000	0.0000	0.0001	0.0000	0.0000
Log likelihood	-339.4902	-342.5994	-343.0907	-346.1713	-368.8109
N	281	282	281	282	293

Notes. Ordered probit regressions, standard errors in parentheses. Further controls include gender, age, location, work status, number of dependants and ethnicity.

Conclusions

The two starting points for this paper were how objective and subjective indicators are related and whether people can provide accurate accounts of their experiences. As we have argued, the methodological implications of these questions are considerable, and although the literature we reviewed on the validity of self reported data sounded some warning notes, we hope through our empirical examples to provide further illustrations of the value of self-reported data. One of the strengths of the paper is the use of two very different datasets to address these questions, representing differences in style of questionnaire administration, dependent variables, and educational backgrounds of the respondents. Our conclusion is that while subjective data can be useful in confirming

expected patterns and revealing unexpected ones, it can also be highly misleading. Perhaps this data can be better seen as part of a broader narrative about a person's life (Elliot, 2005), rather than as individual data points that can be analysed in isolation. Sensitivity to both the context of the studies, in terms of their research foci, methods, personnel, and the background of the respondents is required in order to locate their responses and make a considered judgement as to their validity in relation to specific factual questions.

Other studies support our conclusions as to the validity of subjective data and suggest that evaluations made at the domain level or for specific aspects of life are relatively accurate. We find that objective dimension-specific achievements are reliable predictors of domain-specific subjective satisfaction, although we noticed more difficulties when it comes to quantifying dimensions importance, in particular in the case of more abstract domains such as personal safety. The reason why evaluations of life as a whole might be less accurate than domain-specific ones are the difficulty of the task (aggregation both across domains and over time) and the greater influence of factors such as duration neglect or current mood.

Another puzzle for development researchers is why the things that people say they value most are not the strongest predictors of their scores for overall life satisfaction. The first point to note is that judgements of life satisfaction are not the same as *experiences* of life satisfaction and some authors argue that these judgements are unstable and context-dependent. We might expect a greater stability in normative judgements such as accounts of values as these will reflect consensus within society or salient social groups (e.g. in this example the respect paid to education). What we are seeing is forms of bias acting at the stage of dimension valuation (e.g. respondents underestimating the importance personal safety has for them). However, it is hard to judge from this dataset whether this represents a problem specific to particular domains, e.g. responses to questions about personal safety could be influenced by misperceptions of risk, or a more general problem.

Another potential source of bias is the language of administration which in addition to the challenges of translation can evoke very different styles of response. Our paper makes a strong contribution to understanding in this area since it presents the quantitative analysis of a well-defined translation issue in a dataset of over 3,000 observations collected in a controlled setting. While it is theoretically possible to use forward and backward translation and reconciliation of discrepancies to produce different language versions of a questionnaire in such a way that the translation does not affect results, we have found examples of translations that are technically correct

nonetheless failing to capture the concepts being conveyed. For example, in relation to material hardship, the fact that the original English phrase suggests a higher degree of deprivation than its best translation option does have a significant effect, although this does not appear to have altered the general response pattern.

In relation to the accuracy of respondents' perceptions, we tried to make sense of the finding that the perception of having experienced material hardship is stronger in presumably wealthier respondents (the material hardship question was the only exception to the customary avoidance of extreme values in responding to survey questions). A number of explanations emerged from the literature relating to prospect theory (overweighting of losses relative to gains) and category boundaries (e.g. sharp differentiations between life before and after starting a degree). Temporal distortions are a common challenge with retrospective and prospective accounts of wellbeing rather than online evaluations, as Kahneman et al (2004) have described in relation to objective happiness measures such as the day reconstruction method. Finally, given the first study's location, upwards adaptation may be important as on starting a degree respondents may recalibrate their mental scales and acquire new reference groups that cause them to assess their previous situation negatively. For example, university students from LICs or households where parents have lower occupational statuses are less likely to say they have experienced hardship even though it seems more plausible that they would have, possibly because they have a wider frame of reference to situate their experiences in.

Our paper adds to a solid body of evidence suggesting that subjective data are complex and need to be treated with caution. One way to do this is by paying attention to the biases researchers can control such as question order effects and problems arising from weak conceptualisation or translation of the variables of interest. For example, Kahneman and Deaton (2010) explain apparently contradictory evidence on the impact of income on subjective wellbeing by separating satisfaction with life and emotional wellbeing, which are often erroneously lumped together (see also Rojas and Veenhoven, 2011). However, researchers also need to be aware of bias from cognitive processes that they cannot control, especially where these create differences in responses that are culturally patterned. This requires greater reflexivity on the part of researchers, which should be built into accounts of substantive findings in the form of honest assessments of what the data can and cannot tell us, rather than side-lined in methodological papers.

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