## FP7 - Design Study

# *Deliverable 9: Report on existing GGS measures on Life Course and Decision Making*

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# GGP 212749

*Deliverable 9*

# Report on existing GGS measures on Life Course and Decision Making

*Jane Klobas, Silvia Ruggeri, Marta Marzi*

***Bocconi University***

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# Report on existing GGS measures on Life Course and Decision Making

Jane Klobas, Silvia Ruggeri, Marta Marzi

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## Executive Summary

This deliverable reports the results of review and evaluation of the experience of the Generations and Gender Survey concerning socio-psychological decision-making, and in particular, the "Theory of Planned Behavior" as implemented in the GGS. The review and evaluation take into account existing substantive research on life course decision-making, instruments used to study individual decision making about life course behaviours in other comparative population surveys, and the quality of available GGS data.

The report begins with a review of the state of the art of research on life course decision-making, and an introduction to the theory of planned behavior (TPB) as a framework that outlines a pathway for influences on life course behaviour, encompassing (among other things) stable individual characteristics, the cognitions associated with reasoned decisions for planned life course changes, and the behaviours and outcomes that arise from life course decisions. We then present details of the sources to the TPB-based life course decision making items include in the GGS and an overview of our review of other comparative population surveys considered in preparation for our evaluation of GGS measures to study individual decision making about life course behaviours. Finally, we report the criteria, methods and results of tests that employed psychometric and statistical methods to analyse the relevant GGS data available from the seven countries for which data were available at the time the majority of the work described here was carried out. The principal conclusions are as follows:

a) The life course decisions that are included in the GGS are appropriate;

b) the sets of life course decisions included in the core GGS for in-depth study address crucial events in the life course and should be maintained, while there is no need to augment them;

c) problems with routing in administration of the GGS led to both inclusion and exclusion problems among respondents to all batteries of questions for in-depth study;

d) some countries defined eligible respondents for different decisions using a different set of criteria from the standard GGS criteria making cross-country comparison with these countries difficult; the reasons for application of different criteria, on the other hand, helped understand difficulties with routing, introductions to item sets, and certain items

e) not all batteries were fully implemented in all participating countries, or for all nominally eligible participants in all countries, again creating some difficulties for cross-country comparison;

f) the standard GGS routing directed some items to respondents to whom they did not apply, e.g., items about closeness with parents were asked (in those countries that did not use country-specific routing) of respondents with no parents, resulting in clustering around the mid-point in some scales;

g) high proportions of missing values were observed for several intention items[1]; while the reasons for the missing values were uncoded, it seems that the form in which the intention question is asked[2], which forces a directional choice (either yes or no) fails to offer a valid response for respondents who are genuinely unsure;

h) the theory of planned behaviour (TPB)[3], which forms the basis of the decision-making item sets, is a good framework for continued study of life course decision-making, not only because it is a sound and well-tested theory, but also because it provides a unifying framework for the factors proposed in other literature to influence life course decision making and it offers valuable guidelines for definition and measurement of cognitions that contribute to life course decisions. It has already been used with success in studies of fertility intentions and realisation of those intentions, particularly those studies conducted as part of the REPRO project. Analyses of the TPB batteries for the other decisions included in the GGS show that the TPB also provides a good explanation of intentions for these actions, within the bounds of the data quality limitations referred to below (see deliverable submitted June 2010 for more details);

i) not all beliefs included in the TPB batteries were correlated with intentions, and it seems possible to define a smaller set of salient and compatible behavioural beliefs and control beliefs to reduce the size of the core batteries used to measure *attitude* and *perceived behavioural control*;

j) while several of the core behavioural beliefs (to measure *attitude*) demonstrate that the qualities of items that were understood and comparable across countries, others were not and will need minor revision for relevance and clarity;

k) a key normative referent, the respondent's partner was included in only one TPB *subjective norm* battery, an omission that places a limitation on TPB-based research on life course decision making with the GGS;

l) the TPB battery of questions for all life course decisions failed to fully capture the concept of *perceived behavioural control* as defined in the TPB, and should be replaced;

m) while it might be possible to define a smaller core set of items to measure each component of the TPB, it is also important to include items that tap key beliefs associated with specific decisions, notably the decision to have a (or another) child, and the decision to retire;

n) the retirement battery of questions did not function as well as the others for several reasons including the intention variable itself from which the definition of "retirement or early retirement" may not have been clear in all administering countries, the definition of eligible respondents and routing problems;

[1] The decision to pursue each life course event included in the GGS is represented as an *intention* to pursue it.

[2] The response scale is: definitely not, probability not, probably yes, definitely yes.

[3] The battery of TPB items for each decision includes items to measure the beliefs that underlie the three proximate determinants of the dependent variable, intention. The proximate determinants are *attitude* (measured with behavioural beliefs), *subjective norm* (measured with normative beliefs, based in the GGP on the opinions of normative referents), and *perceived behavioural control* (measured with control beliefs).

o) the optional union dissolution module was fully administered in only two countries where measurement scales were satisfactory but correlation of individual items with intention was low.

We recommend

1. no change to the life course decisions for which full TPB batteries are included in the core GGS;
2. omission of the optional union dissolution module from the next round of the GGS, but this decision should be re-visited when developing the third version of the survey;
3. continued use of the TPB as a framework for study of social psychological influences on life course decisions and actions;
4. replacement of the entire battery of perceived behavioural control questions for all decisions, in order to directly address the concept of control as defined in the TPB;
5. inclusion of partner among normative referents in the TPB battery for all decisions;
6. omission of non-salient beliefs items from the TPB battery to measure attitude;
7. minor revision for clarity and to permit comparability to a small number of behavioural beliefs (if retained);
8. the retirement intention item, and rules for valid respondents and routing, should be revised;
9. experimentation to determine the effect of including a middle category, *unsure*, in the intentions questions;
10. in any case, coding of reasons for non-response to all intention and TPB-battery items;
11. revision to the operationalization of the GGS to minimize routing problems and reduce the apparent necessity for individual country-level decisions on routing and eligibility.

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# Report on existing GGS measures on Life Course and Decision Making

## 1. Purpose and approach

This deliverable reports the results of review and evaluation of the experience of the Generations and Gender Survey concerning socio-psychological decision-making, and in particular, the "Theory of Planned Behavior" as implemented in the GGS. The review and evaluation take into account existing substantive research on life course decision-making, instruments used to study individual decision making about life course behaviours in other comparative population surveys, and the quality of available GGS data.

The report begins with a review of the state of the art of research on life course decision-making, and an introduction to the theory of planned behavior (TPB) as a framework that outlines a pathway for influences on life course behaviour, encompassing (among other things) stable individual characteristics, the cognitions associated with reasoned decisions for planned life course changes, and the behaviours and outcomes that arise from life course decisions. We then present details of the sources to the TPB-based life course decision making items include in the GGS and an overview of our review of other comparative population surveys considered in preparation for our evaluation of GGS measures to study individual decision making about life course behaviours. Finally, we report the criteria, methods and results of tests that employed psychometric and statistical methods to analyse the relevant GGS data available from the seven countries for which data were available at the time the majority of the work described here was carried out.

## 2. State of the art of research on life course decision-making

Although life course research is a substantial field, most research is conducted at the population or large group level. Relatively little research is conducted at the level of the individual, and of that research, very little focuses on how individuals make decisions about life course events. Of course, not all life course events are the result of a conscious decision (obvious examples include unplanned pregnancies, the loss of a partner in unplanned circumstances, and the unexpected and unwanted loss of a job). Some events are, however, planned – at least by some members of the population. We begin this report with a brief review of the research of the approach taken in life course research to conscious or 'reasoned' decision-making about life course events.

### 2.1. The life course paradigm

The life course paradigm emerged in the mid-twentieth century as a response to rapid social change and took advantage of the availability of longitudinal data and new techniques to analyse them. As distinct from the life cycle approach, which assumes a common sequence of events during a person's life, the life course approach offers a framework for exploring the dynamics of the many interdependent pathways that individuals might follow during their lives and the interactions

between the different domains (e.g., family and work) in which an individual might play different roles (Giele & Elder, 1998; Kulu & Milewski, 2007; Mayer, 2009).

The key elements that influence one's life course are, according to Giele and Elder (1998): location in time and place including history, social structure and culture; linked lives; the interaction of individuals with societal institutions and social groups (friendships and networks); human agency: the active pursuit of personal goals and the sense of self; and the timing of lives, chronologically ordered events that include both passive and active adaptation to external events. Data used for life course research should therefore contain information relative to historical context, relationships with family and in other social settings, health and subjective aspects of meaning and satisfaction, and the timing of events (Fehring & Bessant, 2009).

Given its focus on the study of "lives in motion", the life course approach devotes much attention to transition experiences which trigger a change in an individual's life course (Smith & Moen, 1998). These transitions are the focus of this work package. In studying individual decision making in a life course context, we are particularly interested in subjective interpretations of context and relationships, and how these interpretations are associated with agency as individuals actively make decisions about engaging in and the timing of significant events in the life course. Of course, in order to study individual decisions in their context, it is essential to have information about historical and social context, and these are the focus of other work packages upon which the work described here relies.

The timing and sequencing of transitions between life course trajectories reflects long-term trends and as well as shorter-term differences between cohorts and variations among individuals within cohorts. A phenomenon that might drive long-term variation is modernization. Many argue that modernization has freed individuals from traditional family and social constraints allowing for greater agency in construction of their personal "biographies" (Giddens, 1991), and this view underlines the need to study individual decision making in the life course.

## 2.2. Key transitions in the life course

A key transition in the life course is transition to adulthood. The changes that mark this transition are typically leaving school, entering the labour force, moving out of the parental home, marrying, and establishing one's own family (Kerckhoff, 1993). The sequence in which these events occur, and thus the formative life course trajectories of young individuals, is increasingly more varied, particularly in advanced economies, and current generations are making the transition to adulthood at an older age than earlier cohorts (Brueckner & Mayer, 2005; Corijn & Klijzing, 2001; Fussell & Gauthier, 2005; Fussell et al., 2008; McDonald & Evans, 2003; Martin et al., 2007; Rindfuss, 1991). Elzinga and Liefbroer (2007) observed that the traditional family formation path of early marriage and motherhood is followed less often in Europe, except in Mediterranean and formerly Communist countries, while several other types of trajectory are becoming more common.

For individuals who have worked during their life course, another key transition is retirement. This transition is often marked in modern economies by choices of timing, intensity (sudden retirement

or an eased transition), and return to full or part-time work, in the same or a different sector, paid or unpaid (Feldman, 1994), and in the latter part of the twentieth century, significant increases were seen in both average age at retirement (Han & Moen, 1999) and the variability of retirement age (Kohli & Rein, 1991).

While most life course research focuses on transition to adulthood, more attention is paid to transition to retirement in the psychological literature. In the following sections, we draw on both sources to identify issues of importance to the study of life course decision-making.

## 2.3. Institutional influences and individual characteristics

Much research on life course transitions is conducted at the macro-level, while another substantial body of life course research focuses on the effect of individual characteristics such as education on life course trajectories. While this research is not of direct interest to our work on individual decision making, it is of interest where researchers in these traditions use their results to draw inferences about how macro-level factors and individual characteristics might affect emotions and values and beliefs or other cognitions that give rise to life course decisions. For example, Aassve et al. (2007a) find that young people in Scandinavia are likely to leave home earlier than those in other countries despite the fact that such a move is associated with a higher risk of entering into poverty. They suggest that, given the well-functioning labour-market and generous welfare system in Scandinavian countries, this apparently irrational behaviour might reflect willingness to risk poverty because it is expected to be a temporary situation.

The relationship between young adults' employment and education and their home leaving and family formation patterns has been widely investigated and there appears to be a strong link between the demographic processes governing the decline in the fertility rate and education and employment status. Educational attainment and labour force status are frequently observed to have an impact on the timing of births, and the impact seems to be different for men and women. For men, being employed is typically a prerequisite for marriage and parenthood (Goldscheider & Waite, 1986; Huinink, 1995; Liefbroer & Corijn, 1999; Oppenheimer & Lewin, 1999; Winkler-Dworak & Toulemon, 2007), and higher income is associated with earlier family formation (Bracher & Santow, 1998; Huinink, 1995; Oppenheimer & Lewin, 1999). On the other hand, the results of research on the effect of employment on entry into first union for a woman is mixed, with some studies finding no effect (Liefbroer & Corijn, 1999) and others finding that women in employment delay union formation (Bracher & Santow, 1998; Goldscheider & Waite, 1986; McLaughlin et al., 1993; Oppenheimer & Lewin, 1999).

For both men and women, there is mixed evidence on the association between level of education and union formation (Blossfeld & Jaenichen, 1992; Blossfeld & Huinink, 1991; Bracher & Santow, 1998; Coppola, 2004; Goldscheider & Waite, 1986; Huinink, 1995; Leridon & Toulemon, 1995; Liefbroer & Corijn, 1999; Oppenheimer & Lewin, 1999), but nonetheless, education remains an important variable in research on life course decision making. One finding about education is unambiguous: for men, in particular, but also for women, being a student and undertaking family

roles are generally incompatible (Bracher & Santow, 1998; Coppola, 2004; Goldscheider & Waite, 1986; Hango & Le Bourdais, 2007; Liefbroer & Corijn, 1999; Oppenheimer & Lewin, 1999).

Gender differences are of particular interest in many life course studies. In studies of retirement, gender is a significant source of heterogeneity, and it seems that men and women experience different processes of retirement and adapt differently to the new life status of being in retirement. In particular, women are more likely to experience depression following retirement, especially when their husbands are still employed (Kim & Moen, 2001).

Arguments about modernization often invoke values and general orientations such as religiosity and materialism (Lestaeghe, 1995). For some life course events, the effect of religiosity is likely to be predictable. For example, Kapinus & Pellerin (1998) show that parents' religiosity influences their children's attitudes towards divorce. In other domains, and like other individual characteristics, the results of studies of the influence of religiosity are mixed. For example, Rosina and Testa (2009), using data from the Italian FFS, found that religiosity played an important role in the decision to have one's first child in Italy, while Klobas et al. (in preparation), using data from the same source, found that religiosity had little influence on the decision to have one's second child.

There is also a body of research on the effects of ethnicity on differences in life course transitions, although this research tends to focus more on the effects of ethnicity on factors that themselves influence life course decisions rather than any direct influence ethnicity might have on the decision. For example, Oropesa (1996) examined the normative foundations of marriage in different Latino groups in the United States in order to identify the effect of ethnicity and different cultures on normative prescriptions for marriage.

While educational attainment, employment status, economic status, gender, and often, values, are typical preoccupations studies of transitions across the life course, we only have inference to guide us on how they might actually affect decision making. Given the mixed results of studies on the effect of individual characteristics on life course transitions, we can conclude that their effect is contingent on certain matters, including but almost certainly not limited to social, national and institutional context. Nonetheless, if we are to understand how and why individuals make life course decisions, we need to know how they *think* about those decisions. The following sections report some progress in direct measurement of individual cognitions about the life course and their relationship to life course decision making.

## 2.4. Attitudes and preferences

Hakim's (2003) preference theory proposes that women are heterogeneous and, early in their life, they develop different attitudes towards childbearing and career. Hakim argues that, since women can control their own fertility, close attention should be paid to their preferences and values. Vitali et al. (2009) tested this theory using individual level data from the European Social Survey. They divided female respondents according to their expressed preferences about work-family balanced and tested whether their intended and actual fertility could be predicted. They found that preferences were predictive and that they had some (but relatively little) predictive power over and

above that of socio-demographic variables. While this result is consistent with the argument that background factors and personal circumstances are important in the formation of the preferences that shape individual choices (Crompton & Harris, 1998; Fagan, 2001; Procter & Padfield, 1999), it also demonstrates that cognitions have an effect, that they are in line with general observations about the effect of socio-demographic variables, and that they can provide additional information that is not available from socio-demographic variables.

The influence of attitudes on fertility is, in fact, an important stream of fertility research. Attitudes to gender roles or egalitarian attitudes have consistently been found to play a role in the formation of fertility intentions, although the direction of such influence has been disputed in recent studies that use different data sources (e.g., Puur et al., 2008, using data from the Population Policy Acceptance Study, and Westoff & Higgins, 2009, using data from the World Values Survey). Cunningham (2008) focuses, on the other hand, on a woman's decision to work and, using data from the Intergenerational Panel Study of Parents and Children finds that gender egalitarian attitudes predict labour force participation over the longer term. This type of general attitude is, however, somewhat distant from the actual decision to have a child, and may act in much the same way as social and institutional context, i.e., as a backdrop to the process of making the decision rather than a proximate influence on it.

The results of work in the reasoned action tradition of Fishbein and Ajzen (1975; 2010), on the other hand, show that attitudes that are specific to the life course decision being made have a significant effect on the decision. Several researchers have shown that attitudes to having a child, and particularly to the positive outcomes of having a child, are associated with intention both to enter into parenthood for the first time and to have a subsequent child (Billari et al., 2009; Dommermuth et al, 2011; Klobas, 2010).

## 2.5. Social influences

A large body of life course research is concerned with the role of social influences on the life course. While most of this research concerns social norms (i.e., norms at the societal level), a smaller body of research has examined the more immediate influence of the individual's perceptions of the opinions of people close to them (subjective norms interpreted from the expressed opinions and observed behaviours of significant others).

Focus on social norms reflects the notion that, far from being a purely individual decision, social norms exist about the appropriate sequencing and timing of the most decisions in life and that life course decisions are likely to be influenced by these social norms and social controls. Billari and Liefbroer (2007) explored this notion using event-history analysis of young people's decision to leave home in The Netherlands, and found no significant influence of social norms on the decision. On the other hand, they found that the opinion of significant others, and particularly parents, does seem to be important. The importance of parental opinion in the decision to leave home has also been observed by other researchers in The Netherlands (Baanders, 1998) and in Canada (Mitchell, 2004), and some researchers even frame the decision to leave home as a joint decision between parents and children (Goldscheider & DaVanzo, 1989).

Another step in the transition to adulthood considered likely to be influenced by the opinions of others is union formation. Liefbroer and de Jong Gierveld (1993) observed that subjective norms derived from the perceived opinions of significant others were better able to predict whether an individual was married or cohabiting without marriage than observable individual characteristics. Subjective norms are also important to the decision to retire, with the opinion of the decision maker's spouse being particularly important (Smith & Moen, 1998).

### 2.6. Other issues in life course research

This review has drawn on research into the decisions most frequently studied by life course researchers. Other decisions that are important to the life course are less frequently studied using this paradigm, but nonetheless important. They include the decision to divorce or dissolve a union (e.g., Kapinus & Pellerin, 1998) and the decision to migrate from one geographical location to another. One notable study of migration is that of Abrams et al. (1999) who used the reasoned action approach to study the decision to leave Hong Kong after the 1997 transition to Chinese rule.

An emerging body of research suggests that life course decision modelling should explicitly consider "competing intentions", i.e., the set of alternative courses of action a person might take at a given juncture in their life and which might realistically compete with one another (e.g., having a child and taking a new full-time job) (Barber, 2001; Philipov, 2009). A comprehensive approach to data collection for life course decision-making should enable study of competing intentions.

## 3. The theory of planned behavior (TPB) as a unifying framework

The reasoned action perspective on behavioural decision making proposes that – for events and outcomes about which a person makes a conscious decision – individuals form an intention which, depending on the circumstances, may ultimately be translated into action. According to the theory of planned behaviour (Ajzen, 1991; 2005), when the action is voluntary (i.e., the individual has some control over whether to act or not), their intention is influenced by three factors: a favourable or unfavourable evaluation of the action and its outcomes (attitude); perceived social pressure, particularly from significant others, to act or not to act (subjective norm); and perceived capability to act (perceived behavioural control). Stronger intentions are typically associated with more favourable attitudes and subjective norms and stronger perceived behavioural control. The relative importance of these three determinants varies from decision to decision and across populations and different groups in the population, and a great deal of research has provided empirical support for the theory and its applicability in different domains (see Fishbein and Ajzen, 2010, for a review). A schematic representation of the theory is shown in Figure 1.

Attitudes are assumed to be a function of beliefs about the event's likely consequences (behavioural beliefs) and their importance to the individual. Similarly, normative beliefs – the expectation that certain referent individuals or groups are likely to approve or disapprove of the decision - form the basis subjective norm. Finally, perceived behavioural control is based on salient control beliefs, defined as the individual's subjective probability that a given facilitating or inhibiting factor is present.

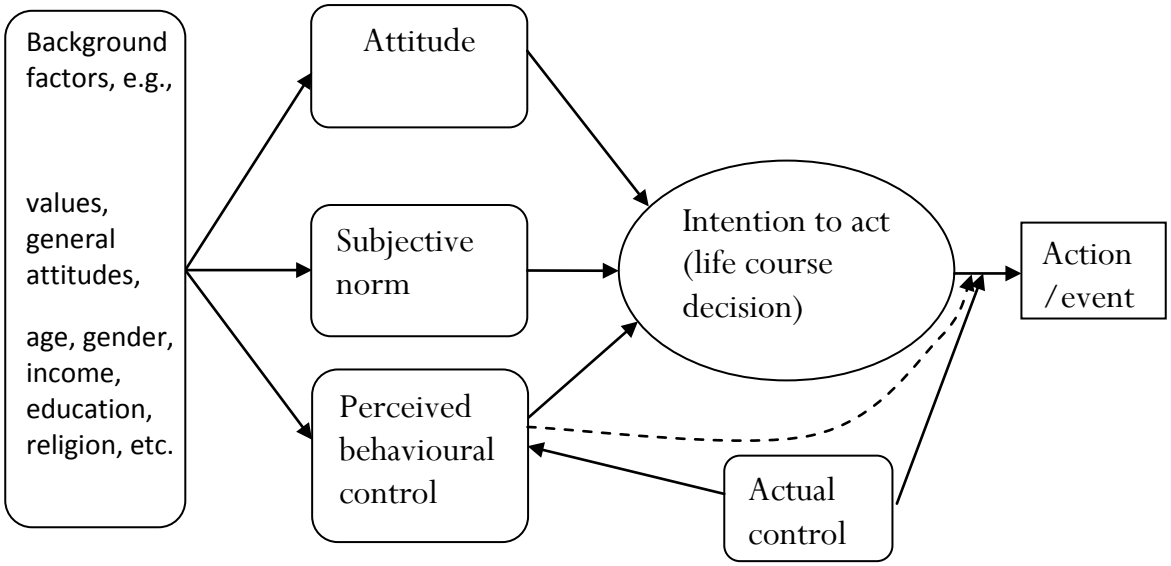


Figure 1. The theory of planned behaviour (Ajzen, 2005) applied to life course decisions and events

Perceived behavioural control is not normally considered in demographic research but, as Figure 1 illustrates, it provides an important link between institutional context, intentions and action. Individuals are able to act on their intentions only if they have sufficient control. Institutions and policies are often directed at control, e.g., policies that provide financial support for parental leave are instruments designed to improve working parents' capacity to have children. In addition to tapping other perceptions of capacity, perceived behavioural control provides an indication of whether institutional actions have the desired effect on individuals' perceptions of control. To the extent that people are realistic in their assessments, perceived behavioural control can serve as a proxy for actual control and contribute to prediction of intentions. Dommermuth et al. (2011) have shown that perceived behavioural control is a good proxy for several of the factors that affect the decision to have a child, including access to suitable housing.

As shown in Figure 1, the TPB also provides a link between socio-demographic factors such as education, employment status, age and gender, and general values and orientations such as religiosity and attitudes to gender equality, all of which the theory proposes act as background factors which influence the formation of attitude, subjective norm and perceived behavioural control. According to the TPB, these immediate determinants of intention fully mediate the effects of the background factors. Consider, for example, a hypothetical negative effect of educational attainment on intention to have a child in the next three years. This effect would be explained if it were found that, in comparison to individuals low in educational attainment, highly educated individuals are less likely to believe that having a child in the next three years would produce positive outcomes (behavioural beliefs); that important others, such as their partner and parents, think they should not have a child in the next three years (normative beliefs); and/or that they have

do not have the time or work flexibility to have a child in the next three years (control beliefs) (Ajzen & Klobas, submitted).

The TPB, thus, offers several advantages for the study of life course decision making:

- It offers a unifying framework for the concerns of life course researchers interested in transition decisions, allowing the factors that directly affect each life course decision to be seen in the context of personal characteristics and other background factors as well as their social and institutional context.
- At the centre of the model is a focus on the individual decision maker and their cognitions. This has the advantage of precision and insight in prediction of decision making by individuals, in particular,
    - the attitudes that directly influence intentions are attitudes to the life course event itself, rather than general attitudes which may or may not influence specific decisions in specific contexts at specific times;
    - subjective norms reflect the opinions of important others, typically those in close emotional or physical proximity to the individual – as with attitudes, these may or may not be influenced by wider social norms in specific contexts for specific decisions taken at specific times;
    - perceived behavioural control refers not to specific constraints or institutional contexts in which different regimes offer better or worse means for overcoming constraints, but rather the individual's sense that are capable of taking the actions necessary to enact the life course event about which they are making the decision.
- The TPB has a refined definitional and measurement tradition, which offers guidance for accurate definition and measurement of the independent variable, intention, as well as attitudes, subjective norms and perceived behavioural control, all of which must be compatible with the action that is the subject of the decision.
- The TPB enables beliefs underlying attitude, subjective norm and perceived behavioural control to be uncovered. These beliefs themselves are likely to reflect background factors and the context of the decision.

# 4. Availability and history of the GGS life course decision making items

## 4.1. Life course decision making domains and items in the GGS

The GGS items were designed primarily to study cognitive elements of decisions to initiate selected life course events. A full set of the life course decisions included in the GGS appears in Appendix 1.

While, for most of these decisions, the decision (in the form of an intention) is the only decision-specific cognitive measure, item sets that enable testing of social psychological influences on the decision are available for four crucial decisions in the main GGS (leaving home, forming a union, having a child, and retiring from the workforce) and for an additional decision, the decision to divorce or dissolve a union, in the optional module.

The TPB provides the theoretical foundation for the full decision-making item sets. While the same core set of items is used to measure effects on the five life course decision, additional decision-specific items are included for each decision (except the decision to form a union). The available items are listed in Appendix 2.

## 4.2. History of the items

The operationalization of the TPB used in the GGS is based on the work of Liefbroer, Gerritsen, & de Jong Gierveld (1994), Billari, Philipov and Testa (2009) and Billari & Liefbroer (2007), who studied the decision to form a union, to have a child and to leave the family home, respectively. More detail of the approaches taken by these researchers is provided in Appendix 3.

The GGS TPB items were first prepared by a small group of researchers who had experience measuring the concepts in the field, and then brought to the full GGS survey development group. As with all GGS items, the group aimed to achieve multidisciplinarity, comparability, context sensitivity, and relevance to people in the second half of their life course as well as to provide insights from both the male and female perspective (Vikat et al., 2007a, 2007b). Of particular importance was the ability to enable a "prospective view" and ultimately the prospective elements of the GGS were "inspired, although not fully based on" the TPB (Vikat et al, 2007b, p. 21). Each item was scrutinised for relevance and meaning, as well as for its ability to reflect the goals of the GGS, and some of the originally proposed items were dropped. The surviving set of items was included in the GGS pilot conducted in Russia and the United Kingdom (these two countries were selected to test cross-cultural relevance and consistency of interpretation). Further minor modifications were made following the pilot.

The selected items were described in the following terms:

> A consistent set of questions on intentions concerning several choices is developed, to allow analysis of such choices as interdependent and competing processes in the life course… According to the theory of planned behaviour, intentions on a specific behaviour are formed with the contribution of three sets of factors. The first set comprises *attitudes* towards the behaviour–i.e. statements regarding the plausibility that the behaviour would provoke a series of consequences, together with the relative evaluation of the positive or negative weight attached to these consequences. The second set comprises *subjective norms* which are determined by normative beliefs–i.e. the perception that one individual has concerning the approval, or disapproval, of a certain behaviour by relevant others. The third set comprises *perceived behavioural control*–i.e. the perception of constraints and/or opportunities that exist concerning the specific behaviour. The relative weight of these three

> sets may depend on the type of decision to be taken … and on the context in which the intention is formed. The GGS constitutes the first international comparative effort to use such a framework, and this is expected to give considerable added value in the explanation of difference between and within countries. (*Vikat et al., 2007b, p. 21, following the introduction to the TPB quoted above*)

It is worth noting that, while the description of items selected to measure attitudes and subjective norm are consistent with the TPB, items to measure perceived behavioural control considered only perception of the existence of constraints, but not perception of ability to overcome them.

## 5. Life course decision making and other surveys

We reviewed several population surveys in order to identify approaches to study life course decision making that might inform our evaluation of existing GGS measures on life course and decision making. Among these were:

- British Household Panel Survey (BHPS)
- European Social Survey (ESS)
- FFS
- Intergenerational Panel Study of Parents and Children
- ISSP Social Networks Survey
- ISSP Family Survey
- Pairfam – Panel Analysis of Intimate Relationships and Family Dynamics
- Population Policy Acceptance Study
- World Values Survey

Not all of these studies include a variable that can be interpreted as representing a *decision* to move to a different role in the life course. Those that do measure a decision (as distinct from a desire or a reported behaviour after the fact), use intention measures that are comparable with those used in the GGS.

None of these studies adopt the TPB or a reasoned action perspective to measure cognitions that might explain or predict life course decisions. Most of the surveys offer measurement of values and other characteristics that act as background factors in the TPB, and which are therefore more distant from the actual decision than cognitions specific to the decision. Of particular interest, however, is the most recently developed survey, Pairfam (Huinink et al., 2010), which includes a comprehensive bank of questions designed to measure cognitions associated with fertility intentions and behaviour. The items are not, however, specific to any given behaviour and their ability to predict fertility intentions is yet to be tested.

We leave a more complete review of the items and approaches used in these surveys to our final deliverable, where we plan to comment on ways that draw on them to inform our proposals for revisions to measurement of life course decision making in the GGS.

# 6. GGS Data Quality

## 6.1. Principles

### Content validity

Each set of items should address the core beliefs that determine the behaviour, across the different countries that administer the GGS.

#### Salience (relevance)

Each item should be relevant to the behaviour/decision of interest, for each country of interest and for each sub-sample of interest.

### Conceptual validity

Furthermore, each individual item should accurately reflect the concept as defined in the TPB:

*Behavioural beliefs (to measure Attitude)* are beliefs about the outcomes of performing the behaviour.

*Normative beliefs (to measure Subjective Norm)* are the respondent's beliefs about what "significant others" want them to do in relation to the behaviour.

*Control beliefs (to measure Perceived Behavioural Control)* are the respondent's beliefs about the ease or difficulty of performing the behaviour and whether or not they feel they have the ability to do so. Relevant beliefs typically address skills, personal context and beliefs about resources that might be influenced by external factors such as policies or employment practice. A good set of items will measure *inter alia* the perceptions expected to arise from relevant actual control factors (not just policy, but personal factors such as health and material support from friends and family).

### Compatibility

The most valid and reliable prediction of a behaviour or outcome is based on predictors that are compatible with the behaviour itself (Fishbein & Ajzen, 2010). Each item (including each intention item) must be compatible with the life course event or decision of interest in terms of

- *Target* – the item refers explicitly and accurately to the object of the behaviour/decision/goal
- *Action* - the item refers explicitly and accurately to the behaviour or action that is to be performed
- *Context* – the item refers to the context within which the behaviour is to be performed (or the decision is to be made/the intention to be formed)

Note: In a population survey such as GGS, the context is embedded to some extent in the context of the individual respondent, e.g., the context of an intention to have (action) a child (target) during the next three years (time) varies depending on whether a person has a partner or not, or if they already have a child and if so, the age of the child. Nonetheless, it is worth explicitly checking that the context is sufficiently well defined for each TPB set, in relation to the other principles noted here.

- *Time* – the item refers to the time frame during which the event is expected to take place (three years, the period between waves in the GGS)

### Sufficiency and internal consistency

While some researchers will use individual items, others are likely to want to use the sets of TPB items as multivariate or composite scales. Each set of items should therefore contain sufficient items to permit cross-national comparison. In addition, each set of items should reliably form a scale; Cronbach's alpha can be used as an indicator of adequate reliability, but additional measures of reliability, specific to structural equation models and item response theory, were also used in order to better diagnose problems identified with some scales.

Notes.

1. The minimum number of items in a scale to permit cross-national comparison is *four* (Hox, GGP WG4). Because GGS respondents include people in different stages of their life course, not all respondents have parents or a partner. If sufficiency is to be reached with a parsimonious set of items, items should not be parent- or partner- specific unless necessary. Any parent- and partner- specific items should be excluded from counts of sufficiency.

2. If items are salient and valid, they should form a reliable scale. If they don't form a reliable scale under these conditions, it is likely that one or more items have not been written clearly and should be revised.

### Operational feasibility

With only very rare and explicit exceptions, it must be possible to ask the question in all GGS participating countries and to obtain answers from the relevant sub-sample of the population. Missing responses should be missing at random only.

## 6.2. Methods

The five TPB item sets included in the GGS were evaluated for:

- conceptual validity and salience, across countries and decisions
- measurement quality, for each participating country

Conceptual validity was evaluated by reference to the literature and previous studies of life course decision making, to approaches to related concepts taken in other population surveys, and using

logical tests of face validity against both the substantive life course theory and the theory of planned behavior. (The author of the TPB, Icek Ajzen, assisted with this last test.). We do not report the results of each of these tests separately, but incorporate them as observations in the results, particularly in the last section. The measurement quality tests also provided information about conceptual validity, as we note below.

Each item in the TPB item sets was examined for:

- proportion of missing values – a high proportion of missing values can be a signal of routing problems in operationalization of the questionnaire, a lack of salience (the item is not relevant to a high proportion of respondents) and/or that the item is difficult to understand by at least some subgroups in the population and needs to be re-drafted. Thus, information about missing values provides information about content validity as well as measurement.

- distribution – tendency to the midpoint (or null) of the scale and low variation are indications that the item is not salient for at least some subgroups in the population. If responses from a specific subgroup are clustered at the mean, routing can be used to avoid asking this subgroup the question. Otherwise, if the item is content valid, it will need to be re-worded, else it can be omitted.

- concurrent validity – if a belief item is salient to the decision, it should be correlated with the relevant intention, at least in several of the countries included in the GGS.

In addition, the item sets used to measure attitude, subjective norm and perceived behavioural control (PBC) were examined for their ability to be combined to produce a meaningful composite score. This was done both to test the properties of the items as scales (and as an index, in the case of PBC), a requirement if the items are to be combined in research reported in the literatures of most fields, and to provide an indication of problematic items. Items that were not correlated with others in the appropriate item set were examined for salience to the decision and wording (could they be readily understood), drawing in part on the individual items listed above.

Additional items within the GGS of relevance to social psychological modelling of fertility decisions were reviewed using a similar approach, but primarily using results provided within other work packages.

The results of the TPB item set analyses are reported in detail in the following section, while observations on the other items are included in Appendix 4.

## 6.3. Results

In this section, we summarise the results of our evaluations. We begin with comments on the validity of the life course decisions included in the GGS, then report the results of measurement tests across all of these decisions before making specific observations on sets of items for each decision. The final section brings together all observations in a summary with some initial recommendations for measurement of each concept. We leave detailed analysis of conceptual

validity to this section because information from the measurement tests is used to help evaluate conceptual validity.

## Life course decisions included in the GGS

Given the current concerns of policy makers and researchers in Europe, the four decisions currently covered in depth in the GGS should be retained. In addition, items to measure intentions for other key decisions should be retained to permit both mapping of the life course and analysis of the effects of competing decisions on life course decision making.

Two additional topics might be considered for future GGS: union dissolution, which was included in the optional core of the GGS, and lifelong learning, an ongoing concern of the European Commission. These decisions are, however, not so common in the life course when compared to those currently included in the core module. Provided intention to dissolve a union and intention to enrol in an educational programme remain in the GGS, these decisions can be tracked.

## Measurement test results

### *Missing values*

Missing values tables for each item relevant to each decision in Appendix 5. Responses are divided by country. Total respondents differ from those used in the high level evaluation conduct for Working Group 4 because, for our work, we restricted the analysis to valid cases using the criteria for valid response to each set of items.

The definition of valid respondents (R) for each decision was:

- Leaving home – R living with a parent (obtained through analysis of household grid; in France, it was possible also to omit responses from R who indicated “It is my parents who live with me”).
- Forming a union – R has a non-resident partner, i.e., R has a partner, but is not living with them. (Item a306 provides information on whether R who does not have a resident partner has a non-resident partner; this information was cross-checked with the household grid and non-valid respondents to a306, i.e., those with a partner, were omitted.)
- Having in a child – R is physically able to have a child and has had sexual intercourse with a member of the opposite sex. (Homosexual people are excluded from the valid data set by virtue of the initial routing question about sexual intercourse with the opposite sex. Physically ability to have a child is subject to several tests: a direct question is included in the GGS and asked in some, but not all, countries, and in addition, R must be aged under 50 if female or have a female partner aged under 50 if male. Age of a male’s female partner was available only if the partner was co-resident, but propensity score matching was used to remove men who had a non-resident partner who was probably aged 50 or older.)

- Retiring from the work force – R is working, aged 45 or over, and not currently retired. (Definition of working for this item set was a positive response to a831, "Did you do any paid work in the 7 days ending last Sunday, either as an employee or self-employed"; a801/a108 provides activity status to identify R who is retired; age is obtained from the household grid. The intention item was double-barrelled, asking if R intended to "retire or take early retirement", which explains the apparently low age limit. The definition of "working" captured housewives, the officially unemployed and students who had worked immediately prior to the survey; we omitted these groups in subsequent analyses.)

- Union dissolution (optional module only) – R has a partner, either co-resident or non-resident (information obtained from the household grid and item a306).

The tables show high levels of non-response for all decisions in most countries. Further analysis revealed that a relatively high proportion of eligible respondents were not asked the questions in several countries, and furthermore, that a relatively high number of ineligible respondents were asked questions in each battery in several countries. Subsequent discussion with other members of the GGP consortium identified that come countries made specific in-country decisions about eligibility for some decisions, or for some of the independent variables within specific TPB batteries. This did not, however, fully explain the anomalies, an indication that eligibility and routing should be clearer in future versions of the GGS both to improve valid response rate and to reduce the number of responses obtained from ineligible respondents.

### *Concurrent validity*

Appendix 6 shows the correlation (Kendall's tau-b) between each belief item and intention, for each decision. Correlations vary by item and by country for each decision, but some items were consistently moderately correlated with intentions. Items which were moderately correlated (.2 for behavioural beliefs and normative beliefs, .1 for control beliefs, to allow for the limitations in definition and measurement of PBC in the GGS discussed in more detail below) with intentions in at least four of the seven studied countries (two for union dissolution) are summarized in Table 1. Not shown in the table is that the relative strength of correlation varies from decision to decision, indicating that not all beliefs are equally salient to all decisions.

Table 1. Items with at least moderate correlation with intention, for different decisions

| Determinant of intention | Belief | Decision | | | | |
|---|---|---|---|---|---|---|
| | | Leave home | Form a union | Have a(nother) child | Retire | Dissolve union |
| Attitude | Effect on freedom | X | X | X | | |
| | Effect on employment opportunities | X | X | X | n.a. | |
| | Effect on finances | | X | X | | |
| | Effect on sex life | X | X | | n.a. | |
| | Effect on personal image | X | X | X | | |
| | Effect on joy and satisfaction | X | X | X | | |
| | Effect on closeness with partner | n.a. | n.a. | X | | n.a. |
| | Effect on care in old age | n.a. | n.a. | X | n.a. | n.a. |
| | Effect on certainty in life | n.a. | n.a. | X | n.a. | n.a. |
| | Effect on closeness with parents | n.a. | n.a. | X | n.a. | n.a. |
| Subjective norm | Friends agree | X | X | X | X | X |
| | Partner agrees | n.a. | n.a. | n.a. | X | |
| | Parents agree | X | X | X | n.a. | X |
| | Children agree | X | X | n.a. | X | X |
| | Other relatives agree | X | X | X | X | X |
| PBC | Depends on financial situation | X | X | | | |
| | Depends on work | X | X | | | |
| | Depends on housing situation | X | X | | | n.a. |
| | Depends on having a partner | X | n.a. | X | n.a. | n.a. |

*Note*. X = Kendall's tau-b > .2 in at least four countries (two countries for dissolve a union) for attitude and subjective norm, > .1 for PBC. Beliefs that do not meet this criterion are excluded from the table, but included in Appendix 6. n.a. = not available.

## *Scale properties*

Scale properties were tested using structural equation modelling (SEM) for all respondents in the measurement deliverable produced for Working Group 4. These tests showed that all skills met two out of three criteria for good fit to the TPB model, but average error (root mean square error of approximation, RMSEA) was higher than desired. The conclusion of the WG4 tests was that the measurement properties of the item sets were satisfactory but not ideal.

In this WP, we conducted additional measurement tests. The main differences between our tests and those reported in Deliverable 7 were:

- reduced sample, consisting only of eligible respondents to the relevant battery;
- analyses were conducted using multi-group modelling which allowed comparison of country-by-country results as well as whole sample results;
- respondents were split into sub-groups (e.g., by gender, by age group, by partnership status for decision to leave home, by parity for the decision to have a child) to test if the high error reflected differences in the context in which the decision was being made;

- we examined the regression weight and reliability of each item as a reflection of the concept that it was designed to measure;
- we examined the reliability of each set of items as a scale to measure the given concept;
- especially when scale reliability was low or measurement differences were observed across countries as a partial test for item quality and parsimony, we tested for alternative specifications that might identify definitional, semantic or conceptual problems by
    - exploring for the possibility of multi-dimensional scales to measure attitudes and perceived behavioural control rather than the unidimensional scales assumed in the earlier work;
    - removing items (beliefs) which had regression weights (and therefore reliabilities) below the usual threshold for SEM models,;
- we used the Rasch model (Fischer & Molenaar, 1995) as a more stringent and informative test of item and scale quality on selected decisions to obtain further information about sub-sample differences and the relationships among items in the scale; this approach proved very informative, allowing rapid identification of sub-group differences in the 'meaning' of items and of items that were causing problems with scale development.

It was possible to create satisfactory measurement models for

- *subjective norms*, for all decisions, although there were some problems with multi-collinearity in some countries for some decisions, suggesting redundancy among the current set of normative referents; the problems were not, however, consistent, so we advise against reducing the set of normative referents included in the GGS.
- *attitudes*, for all decisions, but not all behavioural beliefs were satisfactory, and in some countries, attitudes to positive outcomes and attitudes to negative outcomes tended to form two separate scales (especially for intention to have a/another child, for which a relatively large number of beliefs was measured)

It was difficult to create a satisfactory measurement model for perceived behavioural control in almost all circumstances. Apart from the definitional problems discussed later, there appear to have been problems with the response scale. In English, the response scale was (to what extent does your decision to ... depend on ...) 1 - *not at all*, 2 - *a little*, 3 - *quite a lot*, 4 - *a great deal*. This scale has two quite distinct valences in this form. In most countries, two modes were observed, at values 1 and 3, but two countries had a single modal response (2 and 3 respectively) suggesting the scale was translated in such a way that the difference between response levels was more even (although this might also be because of differences in eligibility criteria which removed respondents who answered *not at all* because the decision was irrelevant to them from the sample).

Sample SEM measurement models for selected decisions are included in Appendix 7.

## Life course event-specific observations

In this section, we make some specific observations on the TPB batteries to measure each decision considered in depth in the GGS.

### *The decision to leave home*

Operational difficulties in working with this scale, reported to us by other researchers, suggest that it would be useful to consider whether it should only be administered to young people who intend to leave home for the first time.

### *The decision to form a union*

This decision was notable for the relatively high quality of the sample, in terms of both inclusion of eligible respondents and exclusion of ineligible respondents. It was clearly well understood and routing was more effective that for other decisions. Little difficulty was encountered in identifying satisfactory measurement models for all countries. Sample SEM models are illustrated in Appendix 7a and Appendix 7b.

This question is asked of all respondents who have a partner with whom they are not living. There is no specific battery for intention to marry among respondents who are already in a union, although it is possible to determine if respondents without partners intend to marry by combining responses to questions about intention to form a union with intention to marry. One limitation of using this approach, however, is that the TPB items in this battery are not specific to marriage.

### *The decision to have a child (or another child)*

This decision was the subject of detailed analysis within the REPRO project and we drew on work within that project to draw conclusions for this work. Detail of selected measurement models can be found in Klobas (2010). This decision was marked by a clear distinction in most (but not all) countries between attitudes to positive outcomes and attitudes to negative outcomes, and by difficulty in forming a satisfactory scale to measure perceived behavioural control.

### *The decision to retire*

A number of empirical problems were experienced with the retirement battery. Sample SEM models are illustrated in Appendix 7c and Appendix 7d. It was not possible to define a satisfactory scale to measure PBC for this decision.

The problems with measurement scales for this decision appear to be at least partly related to decisions about eligible respondents and routing, but there may be additional problems in this battery, not least of which is the intention item which asks “Do you intend to retire or take early retirement …”, a double-barrelled question which does not define retirement, the meaning of which may vary across countries and to individual respondents. In addition to reviewing the definition of eligible respondents, the question should be revised so it is not double barrelled, and retirement should be defined in terms that make the nature of retirement from the workforce clear to all

respondents and allow cross-country comparison. The literature reviewed in Section 2 provides a guide to how this has been done in other surveys.

### *The decision to dissolve a union*

Although the measurement model was satisfactory, there was low concurrent validity and low response. We did not investigate reasons for these problems in depth given this battery was administered in only three of the countries we studied, and in full in only two of those countries.

## Evaluation of common items

Here, we bring together observations across all TPB item sets in the GGS about validity and measurement quality for each concept in the TPB.

### *The dependent variable, intention*

First, we consider if the life course event (outcome or "behaviour") is appropriately defined across the GGS. One question raised is whether the focus on intention to pursue the life course event "during the next 3 years" is a timing question rather than a question about the decision of interest. A close look at the questions confirms that all questions focus on the decision, e.g., "Do you intend to start living with a/your partner during the next three years?" The time reference in the question establishes a time scale in order to: provide a foreseeable time frame for the respondent to evaluate; for compatibility with items that measure beliefs, which themselves need a foreseeable time frame if they are to be answerable; and to match the distance between waves in the GGS (three years). Indeed, in the cross-section, these items do not permit study of the timing of the event (there is no way of knowing to what time scale either a yes or a no response refers). We recommend no change to this general approach.

Next, we consider whether *intention* is a sufficient and appropriate representation of a decision. In the standard form of the GGS, all intentions questions are asked in the form

*Do you intend to ... during the next three years?*

The response scale is

1 – definitely not
2 – probably not
3 – probably yes
4 – definitely yes[4]

This form clearly captures a decision once a person has decided *definitely not* to or *definitely to* pursue the life course event. It also captures some elements of uncertainty, by asking for tendency toward no or yes (choices 2 and 3 on the scale), but it does not allow for the genuinely unsure, who

[4] In France, the word "definitely" was omitted from responses 1 and 4. In Hungary, respondents were asked "Do you intend to have another child? If they answered "yes", they were then asked to state the time frame.

are coded as missing. This approach, while consistent with earlier life course research and having the value of forcing respondents to indicate their tendency in one direction or another, is not wholly consistent with the notion that a decision is being made. Interest in whether a decision has been made, and the direction of that decision, would formally require the possibility to answer "unsure". Work within the REPRO project to classify fertility intentions clearly indicates that some people are genuinely unsure and unable to provide a direction (Bernardi & Mynarska, 2010).

Empirically, we see unexpectedly high proportions of missing values for some life course decisions in some countries, even after accounting for routing problems. Furthermore, in France where the reason for missing values was coded, a higher proportion of missing values were due to the responding being *unsure* than stating the question was *not relevant*. This suggests that omission of an *unsure* category may have resulted in "missing" responses where useful information could have been obtained.

The simplest scale to capture genuinely unsure as well as different degrees of certainty, would seem to be a semantic differential (the standard type of scale used in most TPB research) along the lines

*Do you intend to ... during the next three years?*

typically, with a 7-point response scale (5-points are possible, but provide less discrimination) ranging from definitely yes to definitely no:

definitely yes | __ | __ | __ | __ | __ | __ | __| definitely no

The points could be labelled with numbers ranging from +3 to -3 with 0 in the middle, to emphasise the range, although this is not normally done. This approach might, however, prove difficult to administer reliably in different delivery modes, and the results might be difficult to reconcile in studies that include earlier waves of the GGS.

An alternative, which might be more likely to provide backward compatibility with existing intention questions would be to use two questions:

1. *Do you intend to ... during the next three years?* (Response: Yes, Unsure, No)

2. If yes or no, *How certain are you that you will act on your intention?* (Response would be best on a scale from, say, 0 *not at all sure* to 10 *absolutely certain*).

While in some ways attractive, this approach would have some coding complications, particularly for those who answer "Unsure".

A notionally simpler option is to insert a category in the existing response scale, which would then be:

1 – definitely not
2 – probably not
3 – unsure

4 – probably yes
5 – definitely yes

One or more of these options should be explored in GGP measurement experiments. Two tests will be necessary:

a) Does inclusion of an unsure category improve data quality?

b) Can backward compatibility with results of earlier waves be demonstrated and routines for re-estimation of intentions from earlier waves be simply implemented?

If no other change is made, it should be possible to code missing responses to identify if an intention was not provided because the respondent was genuinely unsure.

### *Behavioural beliefs (attitudes items)*

A total of 14 different behavioural beliefs was included in GGS1 for the five decisions for which full TPB sets of items were developed. Four of these beliefs were common across all decisions, addressing the effect of the life course event on

- the possibility to do what you want ("freedom")
- your financial situation
- what people around you think of you ("image")
- the joy and satisfaction you get from life ("satisfaction")

Two additional beliefs were common to all decisions except the decision to retire:

- your employment opportunities
- your sexual life

As Table 1 showed, none of the common items were correlated with intention to retire or intention to dissolve a union. Given the sampling problems with both of these decisions, we do not consider them further. Four of the items were correlated with the three other decisions (to leave home, to form a union, and to have a child): effect on freedom, employment opportunities, image and joy and satisfaction, but the correlation for effect on image was low and most responses clustered at the mid-point of the scale for all decisions. Effect on sexual life was quite strongly correlated with intention to leave home and intention to form a union. Effect on financial situation was correlated with intention to form a union and to have a child, but it did not form a reliable scale with other items (see the examples in Appendix 7). There were also problems integrating the freedom and employment opportunities items into a scale with other behavioural beliefs. Our conclusion is that the items to measure beliefs about positive outcomes may not have been expressed sufficient clearly or in a way that the relevance of the item to the decision was clear to all respondents.

The weakest of these items, empirically, was "your employment opportunities". This, in part, may have reflected the fact that the item was asked (except for the decision to retire) of all respondents, whether working or not, so the response was hypothetical for some subgroups, resulting in clustering around the midpoint. Furthermore, it is interesting to note that "your employment

opportunities" 'worked' as well for males as for females when asking about having a child, even though it was originally thought that "partner's employment opportunities" would be more important; similarly, "partner's employment opportunities" seemed to be a salient concept for both males and females. One option for this item would be to remove it entirely from the behavioural beliefs set and rely on the control belief form, but as we argue under perceived behavioural control below, this seems unsatisfactory. The relevant control belief for fertility intentions, for example, seems to concern perceived ability to balance work and family life, but that notion neither translates to other domains nor captures the perceived effect of each decision on employment opportunities. Taking into account the relatively poor performance of this variable and its apparent low salience to all decisions except the decision to have a child, one solution would be to retain it *only* for the decision to have another child. For parsimony, it should be asked only once, as "your financial situation" to females, and as "your partner's or spouse's financial situation" to males with a female partner.

This leaves a set of three common behavioural beliefs, all of which are of interest in the demography literature:

- the possibility to do what you want
- your financial situation
- the joy and satisfaction you get from life

These items might be expected to have different valences in relation to different decisions, but at least for fertility intentions, only one of them ("the joy and satisfaction you get from life") refers to a positive outcome (or a reason to *have* a child rather than *not to* have a child), and this is likely to reduce ability of users of the GGS to predict intention to have a child rather than not to have one. We therefore recommend inclusion of at least one additional item that refers to an expectation of positive outcomes. Given its relatively good performance in most situations, one candidate is the fourth of the common items:

- what people around you think of you

but this is treated as a negative outcome of having a child in pairfam, so it does not meet our goal to add an item that is unambiguously positive.

An alternative might be an item that refers to emotional or social benefits that is distinguishable from a normative belief, perhaps something that refers to

- closeness with people who are important to you

Such an item, although very generic, should capture the sentiments in several specific items currently used in the fertility, retirement and union dissolution scales, but this might also be too close to normative beliefs (perceived impact on emotional relationships is not the same as perceived social pressure to perform a behaviour; nonetheless, the fact that both types of item refer to "important others" might be problematic).

Are any important beliefs missing? Reference to the items used in the studies reviewed in Section 1 and the surveys listed in Section 5 suggests that an item that refers directly to competing intentions might be valuable, e.g.,

- ability to attain other goals that are important to you

This item appears cumbersome, however, and would need to be tested for clarity.

Poor measurement of attitude to retirement, while at least partly due to sampling problems, might also have reflected low salience among the items. At least one important aspect of the decision to retire, time to spend with the family, is not covered by the current scale and should be included in tests:

- the time I can spend with my grandchildren (only R with grandchildren)

Specific beliefs about having a child have been reduced from 11 to 4, and consideration should be given to reintegrating one or two current items if the new core does not meet requirements for reliable measurement.

The Cronbach's alphas reported in Table 2 provide a rough test of the potential quality of the reduced core. These values are obtained for all item sets on beliefs about effect of acting on the decision on freedom (current wording), financial situation, and joy and satisfaction in life. For the decisions to leave home and form a union, the effect on sexual life is included. For the decision to retire, effect on closeness with partner/spouse (current wording) is included. Based on these results, it might be necessary to include an additional specific item for the decision to have a child, if the proposed new fourth core item does not improve reliability.

Table 2. Cronbach's alpha for reduced core (currently available items, unrevised)

| Decision | Alpha | No. of items | *n* |
|---|---|---|---|
| Leave home | .74 | 4 | 8,172 |
| Form a union | .79 | 4 | 7,250 |
| Have a child[a] | .65 | 3 | 28,030 |
| Retire | .71 | 4 | 1,218 |

*Note*. [a] Analysis restricted to respondents aged under 40.

## *Recommendation*

The core behavioural belief items to measure attitudes should address both affective (emotional) and material outcomes and positive and negative outcomes. It is recommended to include four items, in order to analyse the statements as a scale and to assess cross-national equivalence (see Deliverable 7). The recommended core items to retain are:

a) the freedom to do what you want
   [revised item: "freedom" replaces "possibility"] (positive or negative, material or emotional – but tending to emotional, depending on respondent and context)

b) your financial situation
(material, negative or positive depending on decision)
c) the possibility to attain other goals that are important to you
[new item] (positive or negative, material or emotional – but tending to material, depending on respondent and context)
d) the joy and satisfaction you get from life (emotional, positive)

A split ballot should be used to compare the proposed new form of a) with the old form and to enable estimation of a "backward compatibility" path for researchers who want to use this item from Wave 1 onward.

For leaving home and union formation, expected effect on sexual life should be retained:

- my sexual life (leaving home and union formation)

For retirement, consider as specific items:

- my relationship with my partner/spouse [revised item]
- the time I can spend with my grandchildren (only R with grandchildren) [new item]

### *Subjective norm*

Common normative referents for all decisions were parents and friends. *Friends* is a salient referent group for all respondents and, to varying degrees, for all decisions. *Parents* are salient only for respondents with parents, and *some revision to routing should be made to ensure that respondents without parents are not asked questions that refer to them*.

The *partner*, a key referent in formation of subjective norms is missing as a normative referent for most item sets. Partner *should be included in the set of normative beliefs in the same way as the other norms.* (Appropriate routing should be used to ensure questions about partner's opinion are asked only of respondents who have a partner.)

Two other normative referents were included for some decisions in the GGS: "other relatives" and children (not for having a child):

a) Children's perceived norms are not available for most respondents and appear, in any case, to be of little relevance to the behaviours for which the TPB sets were developed with the exception of retirement. Although correlated with intentions among those respondents who could answer the question, children's norms should be omitted from the common set of items for future versions of the GGS, but retained for the decision to retire because it speaks directly to the relationship between generations.

b) The perceived norms of "other relatives" have a mixed effect in different countries. This might well be because the partner was not included among normative referents, but was considered as an "other relative" by some respondents. The item might, in fact, perform quite well if partner is also included in the scale. There is another reason for retaining other relatives as normative referents, and that is that, if respondents have neither partner nor parents, the only normative referent that

would be available without "other relatives" would be friends, leaving the measurement of subjective norms weak for this subgroup.

We also considered whether a religious institution, e.g., *The Church* in Catholic countries, should be included among normative referents. Being an institution rather than a human person, such a referent is likely to be more distant and therefore less directly salient to the decision than human referents, in most cases. From an operational point of view, although a specific religious institution is certainly important for some decisions in several countries, it would be difficult to produce a general question that referred to the relevant institution for each respondent. The GGS already includes questions about religiosity (a1101 to a1103), permitting religiosity to be permitted as a background factor in decision making research.

## *Recommendation*

Retain the current measurement scale. Add "your partner or spouse" as a normative reference. Retain both "friends" and "other relatives" for all decisions, but retain "children" only for the decision to retire. This produces a set of four common items, but for many respondents, only two or three of the items will be relevant. Because of high correlations between items in the subjective norm scale, it could be argued that the high internal consistency/low standard error compensates for the low number of items.

Routing should be revised to ensure that questions about partner and parent opinions are asked only of respondents who with partner or at least one living parent, respectively.

### *Perceived behavioural control*

Perceived behavioural control (PBC) was not measured well in the GGS. There were both conceptual and measurement problems.

Conceptually, the main PBC items identified constraints, but did not measure perceived control over those constraints. While items were available in the GGS (in the a719 bank) to measure general perceptions of control with regard to five constraints that matched the TPB items, they did not directly measure perceived control for the specific life course event. Billari, Philipov and Testa (2009) used the two sets of items (PBC and general control) to jointly score perceived control for having a child, with some success. However, a test for this project of four experts (two of the authors of the paper cited above, expert in life course research, and two experts in the TPB) and a subsequent analysis by a fifth researcher, produced five different coding schemes for the joint measurement of PBC and general control. A further test with the fertility item bank showed that none of the experts' coding schemes faired consistently better, in terms of correlation with intention, than taking the mean of the PBC items (details in Appendix 9). Thus, on measurement as well as conceptual grounds, we recommend that the PBC item sets be completely replaced.

Two other items in the GGS refer to aspects of control, General health status (a701) and Perceived ability for the household to make ends meet (a1002). These general control items were correlated

with the PBC items, but did not improve ability to explain intentions in a more detailed test with the fertility data. Nonetheless, they provide specific information about background level of perceived control and we suggest they be retained in the GGS.

In deciding on items to replace the existing PBC item sets, it is important to first determine the most salient control factors across all countries. We aim to achieve the ideal scale size of four items to enable comparability. Each item needs to be clear, precise and compatible, and an accurate reflection of the theory or hypothesis behind it. The existing items provide little indication of what that might be. Some possibilities are listed below.

- *Your finances* – Does this concern
    - ability to pay household bills? to pay them in full? to pay them on time?
    - ability to pay additional costs that result from the 'behaviour' (difficult if the behaviour is retirement or return to study)? or
    - simply "I can (financially) afford to ...", which is much less precise, but more likely to be comparable

- *Work* – This clearly has a different potential meaning for each decision. Because the financial situation is dealt with under Finances, any item here should consider desired work or meaningful work or current work or perhaps career prospects, and be as far as possible independent of the finances item, e.g.,
    - ... will have a negative effect on/limit ability to work?
    - … enable me to [continue] to do the work I would like to do?
    - ... to continue in the job I am currently doing?

  But, is this really about control? Perhaps work is only a control issue for having another child (and union formation in some countries)? If so, anticipated positive or negative effects on work should be included as behavioural beliefs (attitudes), except for fertility where the ability to balance work and family life could be characterised as a specific control belief.

  If the issue is balance between work and family life, any item designed to tap that concept needs to be written in language the respondents can understand. Rather than "balance my work and family life", the item might be presented in more direct terms, e.g., "I can have a child and continue with my work/career". An intermediate form might be "I am able to balance my work and family commitments".

- *Health* (own, partner's, or parents', depending on the decision)

  Health can be expected to have a different directional effect on different decisions. Furthermore, health is not really a control issue because it is difficult to have control over health. Indeed, following the earlier studies described in Appendix 2, health may be more appropriately framed as a behavioural belief, e.g., "I am health enough to …" or "… would have a negative effect on my health".

- *Housing*

  The notion here seems to be that suitable housing must be available if a person is to leave home, form a union, have a child, or (less salient?) retire.

- *Childcare* [fertility intentions] – It would be useful to make a distinction between different sources of childcare. That could be done at item a203 and a204 – both of which should be checked for sufficiency once revisions to the social networks questions are known. Nonetheless, the TPB item set question should be direct, e.g.,

  - Do you have access to sufficient childcare to permit you to have a child?
  - It may be necessary to provide an instruction to interviewers to the effect that this question applies to all sources of childcare, not just family or government? This seems an unnecessary additional qualification.

Table 3 provides a sample mapping of conceptually correct forms of control belief items to the constraints identified in the current GGS, for the decision to have a/another child. The table assumes the same response scale as currently used – four levels: *not at all*, *a little*, *quite a lot*, *a great deal*, but it should be noted that this response scale proved difficult to work with in the current GGS data as noted earlier, and it would be better if the response scale were replaced. The two common approaches are: the 'classical' TPB approach and Bandura's (1997) self-efficacy approach. Using the TPB approach, and questions in the revised form, a 7-point (or 5-point) response scale anchored only at the end points, e.g., 1 *not at all* and 5 (7) *completely*, could be used. The basic self-efficacy approach uses a scale of 0 to 10 and a typical question set up would be:

> Even though you might not currently be thinking about ..., please let us know how confident you would be about the following aspects of ... during the next three years. Rate your confidence on a scale of
> 0 – not at all confident to
> 10 – completely confident
>
> 1. Your financial ability to afford to …
> 2. [having a(nother) child] Your ability to balance work and family life

Both forms might be difficult for a general population survey. Research on the TPB has found that strongly agree–strongly disagree scales are also satisfactory (Ajzen, 2002). Such a response scale is already used for subjective norm. To measure TPB using this scale, the stem would need to be revised, e.g., This would require the stem and items would both need some revision, e.g.,

> To what extent do you agree or disagree with the following statements (provide the 5 point fully anchored strongly agree–strongly disagree scale):
>
> 1. I can financially afford to … during the next three years.
> 2. I will have access to suitable housing to … during the next three years.

Table 3. Mapping existing constraints in GGS fertility decision item sets to perceived behavioural control

| GGS a628 item | Current form: *How much would the decision to ... depend on* | Underlying concept | Expressed in terms of control: *How much would you say ... during the next 3 years?* |
|---|---|---|---|
| a628_a | your financial situation | financial capacity | you can afford to have a child |
| a628_b | your work | work-family balance for female | you (your partner) will be able to balance your (her) work and family life |
| a628_c | your housing conditions | suitability of housing | you will be able to provide suitable accommodation for the child |
| a628_d | your health | female is in good enough health | you are (female R) / your partner is (male R) health enough to have a child |
| a628_e | you having a suitable partner | suitability of partner | you will be in a partnership with a suitable parent for your child |
| a628_f | your partner's/spouse's work | see a628_b | |
| a628_g | your partner's/spouse's health | see a628_d | |
| a628_h | availability of childcare | childcare (if needed) | you will have access to satisfactory childcare for your needs |
| a628_i | your opportunity to go on parental leave or care leave | sufficient parental leave | you will have access to sufficient parental or care leave |

Some control factors may be missing from the current set of constraints. The following observations draw on TPB research in other domains and observations from the qualitative research done in WP5 of REPRO.

- *Time* (as in "I don't have enough time to ...") is often a constraint on decisions. Although it does not seem salient for the decisions covered in depth in the GGS, it might be relevant for others (e.g., enrolling in education).
- Another common factor connected with control is "*fear*". This concept appears to be relevant to major life course decisions given their (usual) reversibility. It might be useful to ask
    - I am afraid to ...
- A direct question might be asked about "*readiness*", e.g.,
    - I am not ready to ...

  Such an item may, however, be confused with intention: for some people, being ready is the expression of an intention, and indeed a statement about readiness is often used in multi-item scales to measures intentions in TPB studies (Ajzen, 2005; Fishbein & Ajzen, 2010).

- Related to readiness, a direct question could be asked about *age* for those decisions for which it is an important issue, e.g., I am too old to have another child, I am too young to retire. Again, such an item would not identify any specific source of such a belief, but at an aggregate level it would provide information about age norms.

- We also considered whether it would be possible to ask direct questions about the perceived effect of *policies*, given the theoretical link between actual and perceived constraints. Items of this kind might go along the lines of "The Government provides the necessary support to permit me to ..." or "Sufficient income protection is available for me to have a child." It would be difficult, however, to formulate questions that could readily be answered by all respondents in a population survey, and even more difficult to formulate questions that were relevant in different countries with different policy regimes.

- *Learning effects,* e.g., the learning effect of already being a parent [fertility intentions] – The TPB characterises learning effects as background factors that contribute to the formation of PBC in particular. It might be possible to measure this more directly rather than draw inferences about it using an item such as "I know what resources I need to look after a(nother) child" or (a different question) "I am confident I know what I need to know to be a good mother/father", but such items would be complex to build, particularly in a form that can be used across life course events.

Items specific to some decisions are likely to improve ability to explain and predict them. A possible mapping of core and specific control items was included in a proposal to Working Group 3, prepared in December 2010. It is reproduced in Table 4. The specific items for the decision to have a child are drawn from the current GGS and the analyses reported here, while the proposed items for the decision to retire are drawn from retirement studies discussion in the literature review, but the items have not been used previously in surveys and in the form shown in the table are sufficiently cumbersome to warrant cognitive interviewing before being included in a pilot or final survey.

Table 4. Possible core and specific perceived behavioural control items, December 2010 recommendation

| Existing item | Concept | Revised form |
|---|---|---|
| Stem: *How much would your decision to ... depend upon* | | Stem: *Would you say that* |
| Response scale:<br>1 – not at all<br>2 – a little<br>3 – quite a lot<br>4 – a great deal | | Response scale:<br>1 – definitely yes<br>2 – probably yes<br>3 – probably not<br>4 – definitely not |
| **Common core items** | | |
| ... your financial situation | Financial capacity | you can financially afford to ... during the next three years? |
| ... your work | *Salient only for having a child* | *Omit from core* |
| ... your housing condition (not used for retirement) | Suitability of housing | you will have access to suitable housing to allow you to ... during the next three years?<br>(omit for retirement) |
| ... your health | Good enough health | you will be healthy enough to ... during the next three years?<br>(omit for retirement) |
| *new* | Developmental readiness | you feel ready to ... during the next three years |
| **Specific items for having a child** | | |
| you having a suitable partner | Suitability of partner | you will have a suitable partner with whom to have a/another child during the next 3 years? |
| your partner's/spouse's work | Work-family balance | you (your partner for male R) will be able to balance your (her) work and family life if you have a/another child during the next 3 years? [only for female R who works or male R whose female partner works] |
| your partner's/spouse's health | Female in good enough health | your partner will be healthy enough to have a/another child during the next 3 years? [male R only] |
| availability of childcare | Childcare (if needed) | you will have access to satisfactory childcare if you have a child during the next 3 years? |
| your opportunity to go on parental leave or care leave | Sufficient parental leave | you will have access to sufficient parental leave if you have a child during the next 3 years? |
| **Specific items for retirement** (a) | | |
| new items for cognitive testing and simplification | Ability to adjust | you will be able to adjust well to a life without work if you retire during the next three years? |
| | Information access | you have access to enough information to help you plan for successful retirement from the workforce during the next three years? |

# 7. Summary of major recommendations

We recommend:

1. no change to the life course decisions for which full TPB batteries are included in the core GGS;
2. omission of the optional union dissolution module from the next round of the GGS, but this decision should be re-visited when developing the third version of the survey;
3. continued use of the TPB as a framework for study of social psychological influences on life course decisions and actions;
4. replacement of the entire battery of perceived behavioural control questions for all decisions, in order to directly address the concept of control as defined in the TPB;
5. inclusion of partner among normative referents in the TPB battery for all decisions;
6. omission of non-salient beliefs items from the TPB battery to measure attitude;
7. minor revision for clarity and to permit comparability to a small number of behavioural beliefs (if retained);
8. the retirement intention item, and rules for valid respondents and routing, should be revised;
9. experimentation to determine the effect of including a middle category, *unsure*, in the intentions questions;
10. in any case, coding of reasons for non-response to all intention and TPB-battery items;
11. revision to the operationalization of the GGS to minimize routing problems and reduce the apparent necessity for individual country-level decisions on routing and eligibility.

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# Appendixes

## Appendix 1. Overview of life course decisions included in the GGS

(Item numbers are those in the data file, not the core only questionnaire.)

| Decision | Observations | | |
|---|---|---|---|
| | **Full TPB implemented?** | **Country-specific differences** | **Notes on operationalization** |
| Finish education (a814) | No | N/a for HU | Only asked of students |
| Resume education (a152) | No | N/a HU, DE | For R not currently studying |
| Move from current dwelling (a146) | No | | |
| Leave parental home (a5118) | Yes | Atts n/a for FR | Asked of all R living with parent(s); not restricted to leaving home for the first time |
| Start living with a parent (various items in Section 5) | No | N/a for FR, HU | Refers only to biological parents. |
| Form a union (a327) | Yes | N/a for IT. Many missing for FR and HU | Either cohabiting or married. |
| Get married to partner (a332) | No | N/a for IT. | Valid only for cohabiting R. |
| Break up with partner (a411) | Yes | Only BU, GE Int and SN also available for RU | |
| Have a(nother) child (a622) | Yes | | Complex routing; valid R differed across countries. |
| Adopt, apply for adoption or take a foster child (a623; a631) | No | | |
| Return to work at end of parental leave (a807) | No | N/a for HU. | |
| Take a job/start a business (various items in Section 8, depending on current activity) | No | | |
| Change company or start a business (a848) | No | | Employees only |
| Start a business or take a job (a853 – self-employed only ) | No | | Self-employed only |
| Give up paid work (a849, a854) | No | N/a for HU | No age restriction |

| Decision | Observations | | |
|---|---|---|---|
| | **Full TPB implemented?** | **Country-specific differences** | **Notes on operationalization** |
| Retire or take early retirement (a856) | Yes | N/a for IT. | Asked of R aged 45 or over who "are working". |

## Appendix 2. TPB item sets in GGS Wave 1

| Item | Leaving home | Union formation | Having a(nother) child | Retirement | Union dissolution |
|---|---|---|---|---|---|
| **Intention** | a5118 | a327, a332 | a622 | a849, a854, a856 | a411 (RU, BU, GE only) |
| **Attitudes** | | | | | BU, GE only |
| freedom | a5119_a | a328_a | a627_a | a857_a | a412_a |
| work | a5119_b | a328_b | a627_b | ☒ | a412_b |
| finances | a5119_c | a328_c | a627_c | a857_b | a412_c |
| sex life | a5119_d | a328_d | a627_d | ☒ | a412_d |
| image | a5119_e | a328_e | a627_e | a857_c | a412_e |
| satisfaction | a5119_f | a328_f | a627_f | a857_d | a412_f |
| health | ☒ | ☒ | ☒ | a857_e | ☒ |
| closeness with partner | ☒ | ☒ | a627_g | a857_f | ☒ |
| partner's work | ☒ | ☒ | a627_h | ☒ | ☒ |
| care in old age | ☒ | ☒ | a627_i | ☒ | ☒ |
| certainty | ☒ | ☒ | a627_j | ☒ | ☒ |
| closeness with parents | ☒ | ☒ | a627_k | ☒ | ☒ |
| welfare of children | ☒ | ☒ | ☒ | ☒ | a412_g |
| closeness with grand/children | ☒ | ☒ | ☒ | a857_g | a412_h |
| **Norms** | | | | | RU, BU, GE |
| friends | a5122_a | a331_a | a629_a | a859_c | a415_a |
| parents | a5122_b | a331_b | a629_b | ☒ | a415_b |
| children | a5122_**d** | a331_**c** | ☒ | a859_b | a415_**c** |
| (other) relatives | a5122_c | a331_d | a629_c | a859_d | a415_d |
| partner | a5121 | ☒ | ☒ | a859_a | a414 |
| **PBC** | | | | | BU, GE only |
| finances | a5120_a | a329_a | a628_a | a858_a | a413_a |
| work | a5120_b | a329_b | a628_b | a858_b | a413_b |
| housing | a5120_c | a329_c | a628_c | ☒ | a413_c |
| health | a5120_d | a329_d | a628_d | a858_**c** | a413_d |
| parents' health | a5120_e | ☒ | ☒ | ☒ | ☒ |
| having a partner | a5120_f | ☒ | a628_e | ☒ | ☒ |
| family life | ☒ | ☒ | ☒ | a858_d | ☒ |
| partner's work | ☒ | ☒ | a628_f | ☒ | ☒ |
| partner's health | ☒ | ☒ | a628_g | ☒ | ☒ |
| childcare | ☒ | ☒ | a628_h | ☒ | ☒ |
| parental leave | ☒ | ☒ | a628_i | ☒ | ☒ |

Countries are: Bulgaria, Russia, Georgia, Germany, France, Hungary, Romania unless otherwise stated. Not all items are available in all countries. TPB data are not available for the Netherlands.

# Appendix 3. Studies from which original GGS life course decision making items were drawn

## *(1) Panel Study of Social integration in The Netherlands, 1987-1995*

Modern use of the reasoned action approach to study life course decisions dates to this study. The study addressed, among other things, "intentions concerning parenthood and evaluation of the (dis)advantages of parenthood". The focus was on attitudes, and the included items indicate the influence of Nauck's value of children approach (Nauck & Klaus, 2007).

Items included in the study (from Dijkstra et al., 1997) are summarised in Table A3.1.

Table A3.1 TPB-relevant items from Netherlands Panel Study of Social Integration

| TPB factor | Study factor | Variable names |
|---|---|---|
| parenthood intentions | parenthood intentions | • future children?<br>• timing 1st child<br>• # of children<br>• certainty: Do you intend to have (more) children in the future? certainly not (1), probably not (2), don't know yet (3), probably yes (4), certainly yes (5)<br>• intention partner |
| attitudes | consequence next child | • your freedom to do as you please [autonomy]<br>• your opportunities to spend money to your own liking<br>• the attention you can pay to your education or career<br>• the number of hours you spend on a paid job<br>• your contacts with friends<br>• your amount of free time<br>• the appreciation you receive from people around you<br>• the feeling that you have a goal and purpose in life<br>• the relationship with your partner<br>• your opportunity to feel secure |
| | evaluations of consequences consequence parenthood | Evaluations on a 5 point scale from *not important* to *very important*<br>• working hours<br>• work importance<br>• work partner |
| attitudes cont. | fertility attitude | • likes kids around* |

| TPB factor | Study factor | Variable names |
|---|---|---|
| | *items repeated in Wave 4 | • kids yield happiness*<br>• kids yield satisfaction*<br>• kids need parents*<br>• kids yield social status<br>• society needs kids*<br>• unhappy without kids<br>• best relation with own children<br>• kids strengthen union |
| | affective attitudes | A battery of items that address different domains, including<br>• having children |
| subjective norms | children opinion –these questions asked about the desired *number* of children not the desirability of having a/nother child. Questions asked in Waves 1 and 3. | • parents<br>• partner<br>• friends |
| | importance | • opinion parents<br>• opinion partner<br>• opinion friends |
| perceived behavioural control | locus of control | A battery of items that includes<br>• spending money<br>• diversity in life<br>• autonomy<br>• meaningful activities<br>• decent job<br>• utilizing talents<br>• partner relationship<br>• own children<br>• leisure time<br>• independent housing<br>• regular lifestyle<br>• stressful activities |

Notes:

1. In the original survey, items that might be considered formative of attitudes appeared as both consequences and 'attitudes'. The consequences reflect Nauck's value of children perspective. Evaluations were available only for the consequences items. The only attitudes items that survived to Wave 4 are the four 'fertility attitude' items marked * above.

2. This study includes partner as a SN. Furthermore, there are evaluations for SN. Perceived partner intention is included among the intention variables.

3. No decision-specific control items were included in this study, only general control items.

### *(2) Social coping in Bulgaria*

A study conducted out of the Max Planck Institute in 2002. The TPB was used to study union formation and fertility. The study was influenced by Study (1). Results are reported in Billari, Philipov and Testa (2009) – hereafter, BPT.

An initial set of items was developed and modified after pilot testing. Two waves of data are available, the second contains data on actual children that R had between the two waves. BPT reported the results of factor analysis of the item sets, but they did not include scale reliabilities.

*Attitudes*: A two factor structure emerged from the 12 items included to measure attitudes, one factor measured expectations of the costs of having a child while the other measured expectations of the benefits. The concepts behind some, but not all, of the items that loaded most strongly on these factors were carried through to the GGS. The introductory stem and the items themselves also differed, as shown in Table A1.1, which also includes the factor weight of each item in the BPT study.

Of note here is that expected mental and physical health effects were not included among behavioural beliefs in the GGS item set, even for the decision to have a child, despite their strong loading in BPT's work. A general health item was included in the GGS PBC bank. Furthermore, the personal freedom item in the GGS is less clearly defined as personal freedom than in BPT; it might, for instance, be interpreted as referring to personal activities, or work, or both. On the other hand, an item that did not form a factor in BPT was carried over to the GGS: *Increase joy and satisfaction in your life* was not correlated with either the costs or the benefits items.

*Subjective norms* were based on a set of normative referents ("people whose opinion you value most highly") generated by the respondent. The perceived opinions of the four most important of these referents about the number of children they would "desire" R to have, and their approval or disapproval of R having a/nother child were measured in two questions, but effectively the same question as study (1). Nonetheless, two variables are created and used: number of children and approval/disapproval. Only the approval/disapproval question was used in the GGS and the list of referents was provided by the researchers because the "relational approach" to generating a set of normative referents was considered too complex to implement for the large-scale comparative survey given the range of possible referents. The number of children important others have was also used as a separate measure of SN.

Of particular note with regard to subjective norms is the decision described on p. 451: "In order to construct a measure of subjective norms, we first exclude the spouse from the list of influential people (as joint decision-making is different from normative persons)." This philosophy was carried over to the GGS, even though as defined by the TPB, the partner is an important normative referent who should be included in measurement of SN.

Table A1.1 Mapping of BPT attitudes items to GGS items

| ***Concept*** | ***BPT item*** | ***GGS item*** |
|---|---|---|
| Stem | Do what extent do you agree that … would | To what extent would … make it better or worse for |
| effects on mental health/worry | Increase worries and preoccupations in the course of your daily life (Costs, .678) | *no equivalent* |
| personal freedom | Decrease time for your personal interests, for contacts with friends (Costs,.632) | the possibility to do what you want |
| physical/health effects | Increase the physical burden for you because of the pregnancy, the care for the baby, or breastfeeding (Costs,.591) | *no equivalent* |
| effect on financial situation | Increase your economic difficulties (Costs,.423) | your financial situation |
| career and educational opportunities | Decrease your chances in your working career and/or higher education Costs, (.403) | your employment opportunities |
| closeness with partner | Increase the closeness between you and your partner (Benefits, .804) | the closeness between you and your partner/spouse |
| closeness with parents and relatives | Increase the closeness between you and your parents and relatives (Benefits, .779) | the closeness between you and your parents [sic] |
| certainty in life | Increase certainty in your life (Benefits, .528) | certainty in your life |
| care in old age | Increase your security that at old age there is someone to care about you (Benefits, .435) | the care and security you may get in old age |

*PBC* was constructed jointly from the two sets of items, the first of which measured the importance of four constraints on the decision (economic status, working or educational situation, housing conditions and health) and the second of which measured the respondent's general sense of control over those constraints. The wording of two items was revised for the GGS which used *your financial situation* instead of *your economic status* and *your work* instead of *your working or educational situation*. While BPT used a five point response scale for both sets of items (not at all, not a lot or a

little, indifferent or some, somewhat or much, and strongly or a great deal), the GGS used a four point scale (none, a little, quite a lot, a great deal) which forced responses to two extremes.

*Results*: Attitudes and SN had an influence on intention to have a child during the next three years while PBC had none (multinomial logistic regression).

### *(3) Bolzano study*

A study of short-term intention to have a child in the Bolzano region of Italy, conducted in Italian and German (Billari, 2004). Table A1.2 provides details of the items and scale reliabilities

Table A2.1. Items and reliabilities (Cronbach's alpha) for Bolzano fertility study

| Factor | Items (translated from the Italian for this report) | Cronbach's alpha |
|---|---|---|
| Intention Attitudes (*n*=491) | • Care and security in old age<br>• Career opportunities<br>• Financial situation<br>• Contact with friends<br>• Joy and satisfaction from life<br>• Time for yourself<br>• Concerns about daily life<br>• Family relationships | .726 |
| Subjective norms (*n*=400) | • Partner<br>• Friends<br>• Parents<br>• Brothers and sisters<br>• Relatives<br>• Children | .85<br>(The midpoint of the scale was used where the referent was not applicable) |
| PBC | Score for each constraint was constructed by multiplying the reverse score of the following items by a score for perceived control of the constraint in general terms<br>• Economic situation<br>• Work<br>• Housing conditions<br>• Health | No value reported |

The items primarily reflect the strongest loading items in BPT. In this case, the attitudes items formed a single reliable scale. There is also a relative large set of normative referents, including the partner.

Measurement of TPB factors was formative in all cases (mean of all available items for attitudes and SN; mean of perceived constraints weighted by perceived control for PBC). Also note that a single

attitudes variable was used, rather that the positive and negative attitudes variables used in BPT and in the first studies published with the GGS data (e.g., Dommermuth, et al., 2009).

In logistic regression, controlling for age, parity, partnership status, education and employment status, attitudes and subjective norms had a significant effect on intentions for respondents living in the provinces, while only attitudes had a significant effect for R living in the city of Bolzano. PBC (as measured in this study) had no significant effect.

## Appendix 4. Recommendations for relevant items reviewed in other GGP work packages

| Item(s) | Comment | Recommendation |
|---|---|---|
| a408h | Item within a battery of items to measure disagreement with partner. The battery itself may be replaced. The agreement on child bearing item is not correlated with others in the battery but is positively correlated with intention to have a child. | Retain, if the other items in this scale are retained. Otherwise, omit. |
| "Locus of control" (a719a to a719e) | Five items to measure perceived control over different aspects of one's life during the next three years. Designed to be combined the importance of the control factors in the TPB item sets, but no agreement can be reached on how the best joint "control" item might be scored. Together the two sets of items inadequately address the concept of PBC, and empirically, effect sizes were little different than when using the PBC items alone.<br>Work in other WPs notes that these items do not form a conceptually satisfactory "Locus of control" scale on their own. | Omit |
| Self-reported state of health (a701) | This item is useful for examining the effect of health as a background factor on expressed beliefs. | Retain |
| Perceived ability to make ends meet (a1002) | This item seems to be a good item for general financial control, and response rates and distributions are good. It is potentially a good background factor. | Retain |
| Satisfaction items | A number of items to measure satisfaction with various aspects of one's life situation are scattered throughout the questionnaire. Individual items have already been used in studies of specific decisions, e.g., "satisfaction with division with household tasks" (a402) is used in studies of fertility decision making by couples. Another item (a202) asks about satisfaction with division of childcare in the couple. | Retain individual items, even if there is some difficulty in forming a composite scale for "overall satisfaction". |
| a843 | This question uses country specific lists to identify services provided by employers. a843a should be childcare or crèche services in all countries, but it does not seem to be. While few of the other services are of direct importance to generations and gender issues, availability of employer provided childcare is. | A specific, direct question should be asked in all countries about access to employer-provided childcare or crèche services (whether required by law or not). |
| a1101 to a1103 | Items that ask about the respondent's religion (a1101), religious observance (a1102) and religiosity (a1103). Items at a1103 may be biased toward Judeo-Christian religions in which Church attendance is necessary to mark religious observance | Retain. Revise a1103 to reduce Judeo-Christian bias if necessary. |

| Item(s) | Comment | Recommendation |
|---|---|---|
| a1104 to a1106 | Not of specific interest to decision making | Follow the decision that best suits other WPs |
| a1107 to a1113 | Values and general attitudes | Each of these batteries of questions addresses issues that may act as background factors. At least those most important to demographic and life course researchers should be retained. |
| a1114 | Modernism-postmodernism | Retain as a background factor and to link TPB-based studies to Second Demographic Transition studies |

## Appendix 5. Response rates for items in GGS Wave 1 TPB batteries.

The tables in this appendix report response rates for eligible respondents as defined in Section 6.3.

**Appendix 5a**. Percentage missing values for TPB items for the decision to form a union

| | | | Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BU | RU | GE | DE | FR | HU | RO | BU | RU | GE | DE | FR | HU | RO |
| Valid N* | | | 1897 | 777 | 1894 | 272 | 279 | 1271 | 1084 | 1468 | 899 | 1100 | 210 | 296 | 953 | 533 |
| Intention | | | 93,9 | 98,6 | 99,9 | 89,3 | 96,1 | | 100 | 94,0 | 98,8 | 100 | 86,6 | 97,2 | | 99,8 |
| Attitudes | | | | | | | | | | | | | | | | |
| a5119 | a | What you want | 94,1 | 97,6 | 99,9 | 92,6 | | | 100 | 94,3 | 96,6 | 100 | 88,6 | | | 99,8 |
| | b | Employment | 93,6 | 87,1 | 99,9 | 92,6 | | | 100 | 93,7 | 80,9 | 100 | 88,1 | | | 99,8 |
| | c | Financial sit. | 94 | 96,9 | 99,9 | 94,1 | | | 100 | 94,1 | 96,4 | 100 | 88,1 | | | 99,8 |
| | d | Sexual Life | 93,7 | 93,4 | 99,9 | 86,8 | | | 100 | 93,3 | 88,2 | 100 | 79,0 | | | 99,8 |
| | e | Image | 93,7 | 96,4 | 99,9 | 88,6 | | | 100 | 94,2 | 94,7 | 100 | 84,3 | | | 99,8 |
| | f | Joy and satisfaction | 94 | 96,7 | 99,9 | 92,3 | | | 100 | 94,0 | 96,3 | 100 | 86,7 | | | 99,8 |
| Norms | | | | | | | | | | | | | | | | |
| a5122 | a | Friends | 87,9 | 92,9 | 99,9 | 89,7 | 86 | | 97 | 89,9 | 93,9 | 100 | 85,7 | 89,9 | | 96,4 |
| | b | Parents | 89,4 | 94,1 | 99,9 | 91,2 | 92,5 | | 96,3 | 90,9 | 94,5 | 100 | 87,1 | 95,3 | | 96,4 |
| | c | Children | 87,5 | 91,4 | 99,9 | 88,2 | 88,9 | | 96,4 | 88,3 | 93,4 | 100 | 83,8 | 90,5 | | 96,2 |
| | d | Relatives | 24,2 | 26,8 | 38,8 | 4,4 | 3,2 | | 27,8 | 26,8 | 46,7 | 24,5 | 7,6 | 1 | | 34,5 |
| a5121 | | Partner* | 68 | 42,6 | 86,1 | 56,7 | 79,4 | | 96,1 | 52,9 | 50,5 | 82,7 | 43,0 | 86,3 | | 94 |
| PBC | | | | | | | | | | | | | | | | |
| a5120 | a | Financial sit. | 89,2 | 96,3 | 99,9 | 91,5 | 92,1 | | 97,5 | 90,6 | 95,6 | 100 | 87,6 | 94,9 | | 97 |
| | b | Work | 80,2 | 83 | 99,9 | 90,4 | 88,2 | | 89,2 | 79,7 | 77,5 | 100 | 88,1 | 91,9 | | 84,2 |
| | c | Housing | 89,1 | 96 | 99,9 | 91,5 | 89,2 | | 98,1 | 90,5 | 95,1 | 100 | 85,2 | 92,9 | | 97,2 |
| | d | Health | 88,2 | 95,8 | 99,9 | 93 | 91 | | 97,3 | 89,4 | 94,5 | 100 | 88,1 | 95,6 | | 96,2 |
| | e | Partner Health | 89,4 | 95,5 | 99,9 | 91,5 | | | 97,2 | 90,1 | 95,1 | 100 | 89 | | | 96,4 |
| | f | Having partner | 80,7 | 89,2 | 99,9 | 90,1 | 89,6 | | 77,3 | 83,1 | 85,3 | 100 | 85,2 | 93,9 | | 74,9 |

*Note*. Grey cells = totally missing. Orange cells = 10% to 25% missing. Blue cells = more than 25% missing.

**Appendix 5b**. Percentage missing values for TPB items for the decision to leave home

| | | | Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BU | RU | GE | DE | FR | HU | RO | BU | RU | GE | DE | FR | HU | RO |
| Valid N* | | | 1946 | 1312 | 1382 | 1673 | 1548 | 1815 | 1533 | 2360 | 3386 | 2196 | 2045 | 2443 | 2843 | 1953 |
| Intention | | | 96,5 | 97,0 | 99,2 | 22,7 | 86,8 | 13,2 | 100 | 95,6 | 97,9 | 97,9 | 16,6 | 86,1 | 9,5 | 99,9 |
| Attitudes | | | | | | | | | | | | | | | | |
| a328 | a | What you want | 95,4 | 90,8 | 99,2 | | | 91,7 | 91,7 | 93,5 | 82,4 | 97,9 | | | 83,8 | 83,3 |
| | b | Employment | 94,2 | 72,6 | 99,2 | | 72,0 | 86,4 | 77,8 | 91,6 | 55,5 | 97,9 | | 64,8 | 72,0 | 59,1 |
| | c | Financial sit. | 95,0 | 90,4 | 99,2 | | 92,0 | 88,2 | 87,3 | 93,0 | 82,2 | 97,9 | | 87,9 | 80,5 | 78,5 |
| | d | Sexual Life | 94,8 | 85,7 | 99,2 | | 91,4 | 89,1 | 84,3 | 91,5 | 67,0 | 97,9 | | 82,7 | 69,1 | 56,5 |
| | e | Image | 95,2 | 89,8 | 99,2 | | 86,4 | 88,4 | 86,6 | 93,4 | 82,1 | 97,9 | | 79,3 | 79,1 | 77,5 |
| | f | Joy and satisfaction | 95,3 | 90,7 | 99,2 | | 93,7 | 90,1 | 89,1 | 93,4 | 82,3 | 97,9 | | 88,9 | 77,8 | 77,9 |
| Norms | | | | | | | | | | | | | | | | |
| a331 | a | Friends | 86,8 | 86,6 | 99,3 | 24,3 | 85,3 | | 95,3 | 82,7 | 80,2 | 98,4 | 17,7 | 84,2 | | 89,6 |
| | b | Parents | 78,3 | 69,1 | 82,4 | 3,8 | 66,9 | | 67,8 | 65,0 | 47,7 | 59,5 | 1,7 | 59,3 | | 39,7 |
| | c | Children | 20,1 | 33,4 | 23,2 | 0,3 | 29,8 | | 30,8 | 41,2 | 60,2 | 51,2 | 2,4 | 45,6 | | 61,6 |
| | d | Relatives | 84,5 | 81,3 | 99,3 | 24,6 | 83,9 | | 94,1 | 81,5 | 76,6 | 98,4 | 17,5 | 80,6 | | 88,8 |
| PBC | | | | | | | | | | | | | | | | |
| a329 | a | Financial sit. | 89,8 | 90,6 | 99,2 | 27,2 | 91,8 | 92,6 | 94,7 | 82,8 | 80,4 | 97,9 | 19,6 | 86,0 | 85,3 | 89,7 |
| | b | Work | 78,6 | 73,2 | 99,2 | 27,1 | 75,2 | 65,9 | 78,5 | 66,5 | 55,1 | 97,9 | 19,5 | 66,1 | 45,5 | 65,1 |
| | c | Housing | 89,7 | 90,6 | 99,2 | 27,2 | 92,2 | 92,8 | 94,7 | 82,4 | 80,9 | 97,9 | 19,7 | 86,7 | 85,7 | 88,3 |
| | d | Health | 89,4 | 91,0 | 99,2 | 27,0 | 93,2 | 93,2 | 94,5 | 83,4 | 81,6 | 97,9 | 19,5 | 87,3 | 85,4 | 89,1 |

*Note*. Grey cells = totally missing. Orange cells = 10% to 25% missing. Blue cells = more than 25% missing.

**Appendix 5c**. Percentage missing values for TPB items for the decision to have a(nother) child

| | | | Male | | | | | | | | Female | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BU | RU | GE | DE | FR | IT | HU | RO | BU | RU | GE | DE | FR | IT | HU | RO |
| Valid N* | | | 4049 | 2692 | 3009 | 2816 | 2978 | 4142 | 7283 | 3453 | 4609 | 3208 | 2657 | 2661 | 2986 | 3817 | 5171 | 2483 |
| Intention | | | 93,9 | 94,1 | 90,8 | 58,5 | 75,4 | 79,2 | 68,2 | 97,4 | 95,6 | 95,7 | 95,7 | 84,7 | 92,2 | 80,6 | 96,5 | 98,1 |
| Attitudes | | | | | | | | | | | | | | | | | | |
| a627 | a | What you want | 87,1 | 90,8 | 87,9 | 60,9 | 68,7 | 51,5 | 32 | 94,2 | 91,2 | 94,2 | 95,4 | 92,3 | 85,6 | 77,8 | 51,8 | 95,7 |
| | b | Employment Opp. | 79,5 | 85,6 | 87,9 | 61 | 66,8 | 51,8 | 32 | 88,1 | 86,9 | 86,9 | 95,4 | 92,6 | 82,8 | 77,8 | 51,7 | 89 |
| | c | Financial sit. | 87,1 | 90,7 | 87,9 | 61,8 | 68,9 | 52,6 | 32 | 94,6 | 91 | 94,7 | 95,4 | 93 | 85,3 | 79,4 | 51,8 | 96,1 |
| | d | Sexual Life | 85,7 | 88,5 | 87,9 | 54,8 | 66,8 | 49,8 | 31,8 | 92,3 | 88,5 | 91,1 | 95,4 | 80,6 | 81,1 | 72,2 | 51,6 | 93,7 |
| | e | Image | 85,8 | 88,7 | 87,9 | 56,0 | 60,1 | 50,6 | 31,9 | 91,8 | 88,9 | 92,5 | 95,4 | 84,4 | 73,9 | 75,8 | 51,6 | 91,6 |
| | f | Joy and satisfaction | 86,9 | 90,1 | 87,9 | 59,5 | 68,9 | 51,2 | 31,9 | 93,9 | 90,5 | 93,5 | 95,4 | 88,8 | 85,3 | 76,8 | 51,8 | 95,9 |
| | g | Partner Closeness | 76,7 | 85,7 | 81,7 | 45,5 | 48,5 | 51,1 | 31,9 | 83,7 | 81,4 | 86,7 | 87,5 | 66,7 | 61,2 | 71,3 | 51,8 | 88 |
| | h | Partner Employment | 72,8 | 80,2 | 80,7 | 46,9 | 46,3 | 50,5 | 31,9 | 75,4 | 75,4 | 82,8 | 86,9 | 69,1 | 59,8 | 71,6 | 51,7 | 83,9 |
| | i | Care and Security | 85,6 | 88,6 | 87,9 | 56,6 | 61 | 49,6 | | 93,5 | 89,4 | 92,8 | 95,4 | 86,7 | 75,4 | 73,4 | | 95,4 |
| | j | Certainty | 86,9 | 90,3 | 87,9 | 58,8 | 66,9 | 56,2 | | 93,5 | 90,5 | 93,9 | 95,4 | 88,8 | 82,1 | 70,2 | | 95,2 |
| | k | Parents Closeness | 79,9 | 78,6 | 77,5 | 58,3 | 61,9 | 50,1 | 31,7 | 77,3 | 86 | 84,7 | 87,2 | 88,5 | 76,6 | 76,2 | 51,4 | 86,7 |
| Norms | | | | | | | | | | | | | | | | | | |
| a629 | a | Friends | 84,1 | 85,1 | 88,3 | 56,4 | 48,2 | 49,5 | 28,5 | 91,8 | 88,5 | 90,8 | 95,5 | 85,8 | 62,5 | 75,5 | 45,8 | 94 |
| | b | Parents | 79,0 | 76,8 | 77,9 | 57,4 | 45,9 | 48,3 | 28 | 80,2 | 85,5 | 83,5 | 87,3 | 86,4 | 60,3 | 74,6 | 45,8 | 88,1 |
| | d | Relatives | 83,6 | 84,8 | 88,3 | 56 | 48,9 | | 28,8 | 91,6 | 87,4 | 90,3 | 95,5 | 85,9 | 62,6 | | 57,2 | 94 |
| PBC | | | | | | | | | | | | | | | | | | |
| a628 | a | Financial sit. | 85,8 | 90,3 | 88,3 | 61,9 | 51,9 | 53,1 | 31,8 | 93,5 | 88,8 | 94,3 | 95,5 | 92,9 | 65,5 | 80,3 | 51,7 | 95,5 |
| | b | Work | 79,3 | 84,4 | 88,3 | 61,6 | 51,3 | 47,8 | 31,7 | 87,4 | 81,6 | 84,7 | 95,5 | 92,7 | 63,2 | 63 | 51,6 | 87,1 |
| | c | Housing | 85,7 | 90,2 | 88,3 | 62,2 | 52,3 | 53,2 | 31,8 | 93,3 | 88,7 | 94 | 95,5 | 93,6 | 65,9 | 80,3 | 51,6 | 94,8 |
| | d | Health | 85,4 | 89,8 | 88,3 | 89,8 | 52,1 | 53 | 31,7 | 93 | 88,4 | 93,4 | 95,5 | 92,3 | 65,6 | 79,7 | 51,5 | 94,7 |
| | e | Suitable Partner | 78,4 | 85,7 | 88,3 | 60,3 | 49,7 | 52,8 | | 83,9 | 79,4 | 89,5 | 95,5 | 90,2 | 62,1 | 78,9 | | 88,8 |
| | f | Partner's Work | 74,2 | 77 | 88,3 | 58,4 | 50,1 | 46,8 | 31,6 | 73,8 | 80 | 81,9 | 95,5 | 69,7 | 65,1 | 64 | 51,3 | 84,7 |
| | g | Partner's Health | 78,6 | 81,4 | 88,3 | 58,3 | 52 | 52,1 | | 82,6 | 82,9 | 84,5 | 95,5 | 69,7 | 65,7 | 66,6 | | 87,2 |
| | h | Childcare | 85,5 | 87,4 | 88,3 | 60,4 | 51,6 | 52,8 | 31,7 | 90,6 | 89,2 | 93,2 | 95,5 | 92 | 65,4 | 79,6 | 51,5 | 93,5 |
| | i | Parental Leave | 66,7 | 70,3 | 88,3 | 57,1 | 50,5 | 52,6 | | 76,9 | 87,7 | 90,2 | 95,5 | 89,6 | 62,5 | 78,4 | | 84,7 |

*Note*. Grey cells = totally missing. Orange cells = 10% to 25% missing. Blue cells = more than 25% missing.

**Appendix 5d**. Percentage missing values for TPB items for the decision to retire

| | | | Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BU | RU | GE | DE | FR | HU | RO | BU | RU | GE | DE | FR | HU | RO |
| Valid N* | | | 864 | 876 | 944 | 1205 | 1085 | 1084 | 1109 | 706 | 1421 | 816 | 1487 | 1559 | 1108 | 735 |
| Intention | | | 86,7 | 71,6 | 93,2 | 82,4 | 29,9 | 94,1 | 94 | 88,8 | 61,9 | 91,5 | 64,2 | 24,4 | 94,9 | 93,5 |
| Attitudes | | | | | | | | | | | | | | | | |
| a857 | a | What you want | 85,4 | 21,1 | 3,3 | | 29,9 | 95,4 | 91 | 88,8 | 21,4 | 5,4 | | 24,4 | 95,3 | 89,5 |
| | b | Financial sit. | 85,5 | 21,1 | 3,3 | | 29,9 | 94,8 | 92,2 | 88,8 | 21,2 | 5,4 | | 24,4 | 94,5 | 91 |
| | c | Image | 85,3 | 20,8 | 3,3 | | 29,9 | 88,8 | 88,4 | 88,2 | 21,0 | 5,4 | | 24,4 | 89,3 | 83,1 |
| | d | Joy and satisfaction | 85,3 | 21,1 | 3,3 | | 29,9 | 91,5 | 91,6 | 89,0 | 21,3 | 5,4 | | 24,4 | 92,1 | 89,1 |
| | e | Health | 85,2 | 20,9 | 3,3 | | 29,9 | 92,3 | 91,6 | 88,2 | 21,1 | 5,4 | | 24,4 | 93,4 | 89,8 |
| | f | Partner Closeness | 82,5 | 19,1 | 3,1 | | 23,5 | 86,6 | 81,3 | 83,9 | 15,4 | 3,6 | | 15 | 78,9 | 73,5 |
| | g | Children Closeness | 83,1 | 19,4 | 3,2 | | 25,9 | 88,9 | 79 | 86,3 | 19,8 | 4,9 | | 21,4 | 89,9 | 81,9 |
| Norms | | | | | | | | | | | | | | | | |
| a859 | a | Parents | 70,8 | 17,5 | 3,1 | | 23,2 | | 76,9 | 68,6 | 14,8 | 3,6 | | 14 | | 68,4 |
| | b | Children | 72,2 | 18,2 | 3,2 | | 24 | | 74,8 | 76,9 | 19,7 | 4,9 | | 19,2 | | 76,5 |
| | c | Friends | 76,7 | 18,6 | 3,3 | | 26,7 | | 87,5 | 80,3 | 20,3 | 5,4 | | 21,8 | | 84,2 |
| | d | Relatives | 75,8 | 18,5 | 3,3 | | 26,3 | | 87,6 | 78,2 | 20,3 | 5,4 | | 21 | | 84,6 |
| PBC | | | | | | | | | | | | | | | | |
| a858 | a | Financial sit. | 77,8 | 20 | 3,3 | | 29,1 | | 80,2 | 80,2 | 20,5 | 5,4 | | 24,1 | | 75,2 |
| | b | Work | 77,8 | 19,7 | 3,3 | | 28,7 | | 77,7 | 80,5 | 20,7 | 5,4 | | 24,1 | | 75,2 |
| | c | Health | 78,8 | 20,2 | 3,3 | | 29,4 | | 78,7 | 80,7 | 20,7 | 5,4 | | 24,1 | | 74 |
| | d | Family life | 72,8 | 18,7 | 3,3 | | 28,7 | | 66,2 | 72,2 | 19,1 | 5,4 | | 23,7 | | 63,5 |

*Note*. Grey cells = totally missing. Orange cells = 10% to 25% missing. Blue cells = more than 25% missing.

**Appendix 5e**. Percentage missing values for TPB items for the decision to dissolve a union

| | | | male | | | | | | | female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BU | RU | GE | DE | FR | HU | RO | BU | RU | GE | DE | FR | HU | RO |
| Valid N* | | | 4183 | 3371 | 3108 | | | | | 4995 | 4281 | 3462 | | | | |
| Intention | | | 98,2 | 12,6 | 60 | | | | | 98,4 | 22,5 | 78,2 | | | | |
| Attitudes | | | | | | | | | | | | | | | | |
| a412 | a | What you want | 89,4 | | 60 | | | | | 91,7 | | 78,2 | | | | |
| | b | Employment | 70,4 | | 60 | | | | | 75,6 | | 78,2 | | | | |
| | c | Financial sit. | 89,5 | | 60 | | | | | 92,2 | | 78,2 | | | | |
| | d | Sexual Life | 82,6 | | 60 | | | | | 85,7 | | 78,2 | | | | |
| | e | Image | 86,9 | | 60 | | | | | 88,6 | | 78,2 | | | | |
| | f | Joy and satisfaction | 90,2 | | 60 | | | | | 92,1 | | 78,2 | | | | |
| | g | Children Welfare | 77,8 | | 55,6 | | | | | 81,5 | | 74,6 | | | | |
| | h | Child. Closeness | 77,1 | | 55,6 | | | | | 80,7 | | 74,6 | | | | |
| Norms | | | | | | | | | | | | | | | | |
| a415 | a | Friends | 88 | 92 | 60 | | | | | 89,6 | 92,5 | 78,2 | | | | |
| | b | Parents | 68,6 | 72,6 | 41,6 | | | | | 77,3 | 73,8 | 58,3 | | | | |
| | c | Children | 75,4 | 72,9 | 55,6 | | | | | 77,7 | 76,8 | 74,6 | | | | |
| | d | Relatives | 87,4 | 91 | 60 | | | | | 88,7 | 91,3 | 78,2 | | | | |
| a414 | | Partner | 97,9 | 90 | 58,8 | | | | | 98,2 | 90,2 | 76,3 | | | | |
| PBC | | | | | | | | | | | | | | | | |
| a413 | a | Financial sit. | 83,8 | | 60 | | | | | 86,8 | | 78,2 | | | | |
| | b | Work | 71,9 | | 60 | | | | | 74,3 | | 78,2 | | | | |
| | c | Housing | 84,3 | | 60 | | | | | 86,6 | | 78,2 | | | | |
| | d | Health | 84,3 | | 60 | | | | | 86,6 | | 78,2 | | | | |

## Appendix 6. Correlations between items and intentions for each GGS Wave 1 TPB battery.

Tables report Kendall's tau-b with *p* value in italics below the value. Values above |.2| are highlighted.

| a5118 Intention to live separately from parents during the next 3 years | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Bulgaria** | | **Russia** | | **Georgia** | | **Germany** | | **France** | | **Romania** | |
| | | **Kendall's tau-b** | **N** | **Kendall's tau-b** | **N** | **Kendall's tau-b** | **N** | **Kendall's tau-b** | **N** | **Kendall's tau-b** | **N** | **Kendall's tau-b** | **N** |
| **a5119 Effect living separately from parents (1 much better; 2 better; 3 neither better nor worse; 4 worse; 5 much worse)** | **a** | -0.382 | 3139 | -0.319 | 1621 | -0.350 | 2993 | -0.296 | 398 | | | -0.269 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | **b** | -0.272 | 3122 | -0.211 | 1399 | -0.307 | 2993 | -0.199 | 397 | | | -0.211 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | **c** | -0.191 | 3136 | -0.232 | 1615 | -0.259 | 2993 | -0.064 | 402 | | | -0.174 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.146* | | | | *0.000* | |
| | **d** | -0.368 | 3117 | -0.323 | 1514 | -0.346 | 2993 | -0.353 | 373 | | | -0.398 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | **e** | -0.328 | 3131 | -0.234 | 1595 | -0.360 | 2993 | -0.238 | 382 | | | -0.336 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | **f** | -0.458 | 3134 | -0.368 | 1612 | -0.421 | 2993 | -0.307 | 395 | | | -0.391 | 1616 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| **a5120 Decision living separately from parents depends on (1not at all; 2 a little; 3 quite a lot; 4 a great deal)** | **a** | 0.126 | 2992 | 0.096 | 1602 | 0.208 | 2993 | 0.042 | 394 | 0.161 | 538 | 0.146 | 1574 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.347* | | *0.000* | | *0.000* | |
| | **b** | 0.157 | 2667 | 0.119 | 1338 | 0.191 | 2993 | 0.108 | 392 | 0.189 | 518 | 0.106 | 1416 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.013* | | *0.000* | | *0.000* | |
| | **c** | 0.138 | 2987 | 0.196 | 1596 | 0.175 | 2993 | 0.160 | 391 | 0.171 | 524 | 0.171 | 1581 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | **d** | 0.049 | 2955 | -0.038 | 1590 | 0.012 | 2993 | -0.042 | 397 | 0.018 | 537 | 0.029 | 1568 |
| | | *0.002* | | *0.088* | | *0.488* | | *0.352* | | *0.641* | | *0.193* | |
| | **e** | -0.026 | 2988 | -0.206 | 1592 | -0.043 | 2993 | -0.076 | 395 | | | -0.111 | 1568 |
| | | *0.107* | | *0.000* | | *0.007* | | *0.087* | | | | *0.000* | |
| | **f** | 0.187 | 2723 | 0.151 | 1455 | 0.301 | 2993 | 0.109 | 387 | 0.162 | 528 | 0.298 | 1237 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.012* | | *0.000* | | *0.000* | |
| **a5122 Opinions others (1 strongly agree; 2 agree; 3 neither agree nor disagree; 4 disagree; strongly disagree)** | **a** | -0.370 | 2956 | -0.399 | 1561 | -0.467 | 2993 | -0.330 | 385 | -0.306 | 506 | -0.403 | 1565 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | **b** | -0.353 | 2999 | -0.363 | 1576 | -0.411 | 2993 | -0.397 | 391 | -0.267 | 540 | -0.394 | 1558 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | **c** | -0.357 | 2925 | -0.368 | 1545 | -0.435 | 2993 | -0.325 | 375 | -0.215 | 516 | -0.373 | 1558 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | **d** | -0.426 | 847 | -0.337 | 628 | -0.291 | 1003 | -0.034 | 28 | -0.669 | 12 | -0.364 | 485 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.529* | | *0.008* | | *0.000* | |
| **Does partner/spouse think that R should start living separately from parents (1 yes 2 no)** | **a5121** | -0.360 | 830 | -0.409 | 415 | -0.439 | 987 | -0.220 | 93 | -0.326 | 190 | -0.260 | 636 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.001* | | *0.000* | | *0.000* | |

**a327 Intention to start living with a partner (next 3 yrs)**

| | | Bulgaria | | Russia | | Georgia | | Germany | | France | | Hungary | | Romania | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N |
| a328 Effect living with partner next 3 yrs (1 much better; 2 better; 3 neither better nor worse; 4 worse; 5 much worse) | a | -0.369 | 4031 | -0.328 | 3944 | -0.328 | 3521 | | | | | -0.237 | 497 | -0.310 | 3030 |
| | | *0.000* | | *0.000* | | *0.000* | | | | | | *0.000* | | *0.000* | |
| | b | -0.326 | 3964 | -0.253 | 2803 | -0.253 | 3521 | | | -0.284 | 2360 | -0.177 | 481 | -0.271 | 2344 |
| | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | *0.000* | | *0.000* | |
| | c | -0.252 | 4012 | -0.198 | 3935 | -0.198 | 3521 | | | -0.258 | 3163 | -0.110 | 493 | -0.239 | 2871 |
| | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | *0.000* | | *0.000* | |
| | d | -0.445 | 3972 | -0.340 | 3356 | -0.340 | 3521 | | | -0.417 | 3043 | -0.196 | 483 | -0.438 | 2394 |
| | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | *0.000* | | *0.000* | |
| | e | -0.421 | 4025 | -0.315 | 3923 | -0.315 | 3521 | | | -0.273 | 2906 | -0.129 | 491 | -0.494 | 2840 |
| | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | 0.001 | | *0.000* | |
| | f | -0.484 | 4027 | -0.363 | 3943 | -0.363 | 3521 | | | -0.460 | 3211 | -0.416 | 495 | -0.482 | 2885 |
| | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | *0.000* | | *0.000* | |
| a329 Decision living with your partner depends on (1not at all; 2 a little; 3 quite a lot; 4 a great deal) | a | 0.108 | 3673 | 0.079 | 3876 | 0.079 | 3521 | 0.236 | 714.000 | 0.149 | 3132 | -0.001 | 499 | 0.015 | 3201 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.984* | | *0.319* | |
| | b | 0.071 | 3072 | 0.087 | 2796 | 0.087 | 3521 | 0.193 | 708.000 | 0.156 | 2437 | 0.028 | 386 | 0.001 | 2473 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.505* | | *0.963* | |
| | c | 0.129 | 3660 | 0.142 | 3892 | 0.142 | 3521 | 0.199 | 712.000 | 0.206 | 3151 | 0.184 | 497 | 0.130 | 3174 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | d | -0.043 | 3678 | -0.239 | 3921 | -0.239 | 3521 | 0.030 | 709.000 | 0.012 | 3169 | -0.049 | 496 | -0.139 | 3187 |
| | | *0.003* | | *0.000* | | *0.000* | | *0.317* | | *0.459* | | *0.226* | | *0.000* | |
| a331 Opinions others (1 strongly agree; 2 agree; 3 neither agree nor disagree; 4 disagree; strongly disagree) | a | -0.449 | 3614 | -0.408 | 3818 | -0.408 | 3521 | -0.435 | 654.000 | -0.308 | 3004 | | | -0.451 | 3208 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | b | -0.390 | 3030 | -0.349 | 2494 | -0.349 | 2442 | -0.329 | 87.000 | -0.209 | 2187 | | | -0.387 | 1814 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | c | -0.442 | 1353 | -0.394 | 2461 | -0.394 | 1438 | -0.304 | 44.000 | -0.353 | 1404 | | | -0.380 | 1676 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.014* | | *0.000* | | | | *0.000* | |
| | d | -0.428 | 3544 | -0.416 | 3627 | -0.416 | 3521 | -0.393 | 651.000 | -0.285 | 2902 | | | -0.434 | 3176 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |

**a622 Intention to have a child within the next 3 yrs**

| | | Bulgaria | | Russia | | Georgia | | Germany | | France | | Hungary | | Italy | | Romania | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N |
| **a627 Effect having a child (1 much better; 2 better; 3 neither better nor worse; 4 worse; 5 much worse)** | a | -0.326 | 7683 | -0.267 | 5399 | -0.324 | 5171 | -0.193 | 3770 | -0.445 | 4422 | -0.098 | 5002 | -0.201 | 5006 | -0.271 | 5630 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | b | -0.265 | 7175 | -0.244 | 5026 | -0.270 | 5171 | -0.115 | 3780 | -0.302 | 4282 | -0.178 | 5012 | -0.140 | 5002 | -0.254 | 5252 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | c | -0.314 | 7672 | -0.293 | 5410 | -0.265 | 5171 | -0.143 | 3813 | -0.263 | 4417 | -0.212 | 5102 | -0.175 | 5008 | -0.297 | 5651 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | d | -0.262 | 7504 | -0.178 | 5237 | -0.251 | 5171 | -0.096 | 3362 | -0.233 | 4236 | -0.125 | 4725 | -0.113 | 4978 | -0.187 | 5514 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | e | -0.399 | 7520 | -0.298 | 5288 | -0.332 | 5171 | -0.198 | 3473 | -0.335 | 3835 | -0.273 | 4895 | -0.231 | 4987 | -0.393 | 5445 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | f | -0.483 | 7642 | -0.416 | 5356 | -0.424 | 5171 | -0.404 | 3657 | -0.503 | 4420 | -0.517 | 4953 | -0.356 | 4999 | -0.424 | 5623 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | g | -0.450 | 6814 | -0.343 | *5025* | -0.359 | 4776 | -0.334 | 2782 | -0.378 | 3205 | -0.391 | *4743* | -0.337 | 4998 | -0.408 | 5073 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | h | -0.145 | 6382 | -0.131 | 4757 | -0.145 | 4729 | -0.047 | 2865 | -0.244 | 3101 | -0.051 | *4728* | -0.090 | 4990 | -0.131 | 4687 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | i | -0.316 | 7538 | -0.263 | 5295 | -0.339 | 5171 | -0.216 | 3547 | -0.217 | 3904 | -0.324 | 4765 | | | -0.280 | 5597 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |
| | j | -0.436 | 7641 | -0.384 | 5373 | -0.346 | 5171 | -0.220 | 3647 | -0.468 | 4265 | | | -0.321 | 5002 | -0.319 | 5591 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | | *0.000* | |
| | k | -0.374 | 7152 | -0.327 | 4778 | -0.246 | 4642 | -0.214 | 3619 | -0.287 | 3963 | -0.294 | 4881 | -0.275 | 4965 | -0.325 | 4821 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| **a628 Decision having a child depends on (1not at all; 2 a little; 3 quite a lot; 4 a great deal)** | a | -0.035 | 7520 | -0.151 | 5386 | 0.013 | 5188 | 0.028 | 3817 | 0.101 | 3436 | -0.151 | 5153 | -0.034 | 4984 | -0.170 | 5602 |
| | | *0.001* | | *0.000* | | *0.272* | | *0.041* | | *0.000* | | *0.000* | | *0.005* | | *0.000* | |
| | b | -0.040 | 6928 | -0.124 | 4926 | 0.028 | 5188 | -0.021 | 3809 | 0.043 | 3351 | -0.140 | 4293 | -0.002 | 4972 | -0.144 | 5180 |
| | | *0.000* | | *0.000* | | *0.020* | | *0.129* | | *0.004* | | *0.000* | | *0.837* | | *0.000* | |
| | c | 0.022 | 7514 | -0.035 | 5376 | 0.002 | 5188 | 0.024 | 3837 | 0.124 | 3458 | -0.025 | 5157 | -0.028 | 4978 | -0.058 | 5575 |
| | | *0.027* | | *0.003* | | *0.864* | | *0.088* | | *0.000* | | *0.047* | | *0.023* | | *0.000* | |
| | d | 0.020 | 7488 | -0.158 | 5345 | 0.019 | 5188 | 0.020 | 3792 | 0.043 | 3444 | -0.076 | 5130 | 0.016 | 4968 | -0.072 | 5563 |
| | | *0.043* | | *0.000* | | *0.118* | | *0.186* | | *0.005* | | *0.000* | | *0.189* | | *0.000* | |
| | e | 0.201 | 6795 | -0.008 | 5112 | 0.185 | 5188 | 0.089 | 3723 | 0.154 | 3267 | 0.097 | 5091 | 0.108 | 5104 | | |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | f | 0.015 | 6653 | -0.050 | 4645 | 0.061 | 5188 | 0.049 | 3177 | 0.058 | 3372 | -0.052 | 4297 | -0.010 | 4947 | -0.064 | 4652 |
| | | *0.167* | | *0.000* | | *0.000* | | *0.002* | | *0.000* | | *0.000* | | *0.436* | | *0.000* | |
| | g | 0.089 | 6960 | -0.053 | 4842 | 0.132 | 5188 | 0.096 | 3176 | 0.108 | 3444 | -0.003 | 4613 | | | 0.003 | 5016 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.843* | | | | *0.832* | |
| | h | -0.001 | 7525 | -0.115 | 5274 | -0.002 | 5188 | 0.001 | 3753 | 0.052 | 3424 | -0.022 | 5119 | -0.001 | 4968 | -0.016 | 5449 |
| | | *0.948* | | *0.000* | | *0.851* | | *0.947* | | *0.001* | | *0.096* | | *0.907* | | *0.186* | |
| | i | 0.008 | 6700 | -0.083 | 4725 | 0.030 | 5188 | 0.083 | 3625 | 0.149 | 3303 | 0.034 | 5064 | | | 0.038 | 4758 |
| | | *0.476* | | *0.000* | | *0.013* | | *0.000* | | *0.000* | | *0.009* | | | | *0.002* | |
| **a629 Opinions others (1 strongly agree; 2 agree; 3 neither agree nor disagree; 4 disagree; strongly disagree)** | a | -0.525 | 7441 | -0.476 | 5142 | -0.565 | 5188 | -0.438 | 3528 | -0.437 | 3239 | -0.433 | 4840 | -0.396 | 4441 | -0.464 | 5504 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | b | -0.537 | 7095 | -0.484 | 4692 | -0.563 | 4658 | -0.475 | 3557 | -0.428 | 3102 | -0.487 | 4757 | -0.455 | 4400 | -0.509 | 4956 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | |
| | c | -0.534 | 7364 | -0.504 | 5118 | -0.560 | 5188 | -0.485 | 3523 | -0.434 | 3263 | -0.469 | 4957 | | | -0.479 | 5498 |
| | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | *0.000* | | | | *0.000* | |

**a856 Intention to retire within the next 3 yrs**
(Not available for Italy)

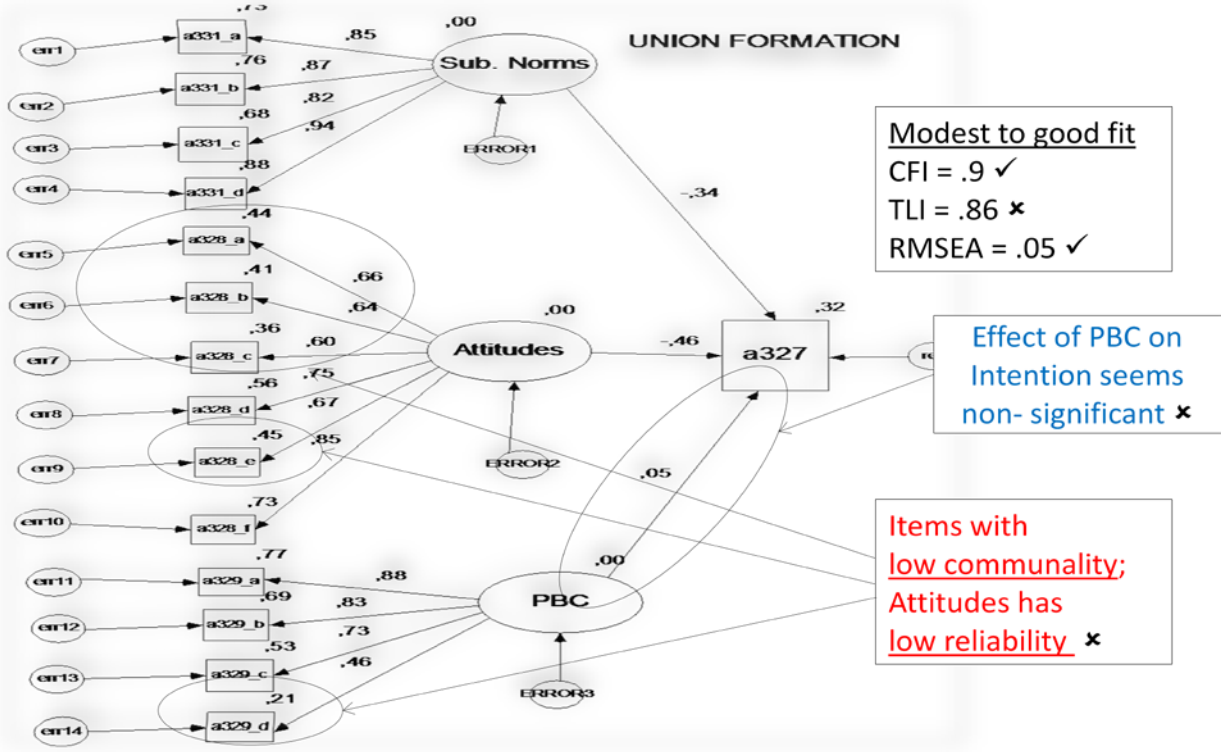
| | | Bulgaria | | Russia | | Georgia | | France | | Hungary | | Romania | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N |
| **a857 Effect retiring (1 much better; 2 better; 3 neither better nor worse; 4 worse; 5 much worse)** | **a** | -0.190 | 1360 | -0.152 | 485 | -0.006 | 75 | -0.279 | 705 | 0.054 | 2031 | -0.159 | 1667 |
| | | *0.000* | | *0.000* | | *0.949* | | *0.000* | | *0.009* | | *0.000* | |
| | **b** | -0.190 | 1360 | -0.152 | 485 | -0.006 | 75 | -0.279 | 705 | 0.054 | 2031 | -0.159 | 1667 |
| | | *0.000* | | *0.000* | | *0.949* | | *0.000* | | *0.009* | | *0.000* | |
| | **c** | -0.149 | 1361 | -0.169 | 483 | 0.052 | 75 | -0.223 | 705 | -0.013 | 2019 | -0.152 | 1692 |
| | | *0.000* | | *0.000* | | *0.605* | | *0.000* | | *0.538* | | *0.000* | |
| | **d** | -0.103 | 1355 | -0.100 | 476 | -0.107 | 75 | -0.172 | 705 | 0.001 | 1906 | -0.115 | 1591 |
| | | *0.000* | | *0.022* | | *0.311* | | *0.000* | | *0.979* | | *0.000* | |
| | **e** | -0.222 | 1360 | -0.198 | 483 | -0.002 | 75 | -0.232 | 705 | 0.044 | 1956 | -0.191 | 1671 |
| | | *0.000* | | *0.000* | | *0.987* | | *0.000* | | *0.040* | | *0.000* | |
| | **f** | -0.110 | 1354 | -0.177 | 480 | -0.170 | 75 | -0.189 | 705 | 0.064 | 1980 | -0.193 | 1676 |
| | | *0.000* | | *0.000* | | *0.037* | | *0.000* | | *0.002* | | *0.000* | |
| | **g** | -0.217 | 1300 | -0.221 | 385 | 0.041 | 58 | -0.171 | 489 | 0.045 | 1768 | -0.138 | 1442 |
| | | *0.000* | | *0.000* | | *0.690* | | *0.000* | | *0.044* | | *0.000* | |
| **a858 Decision to retire depends on (1 not at all; 2 a little; 3 quite a lot; 4 a great deal)** | **a** | -0.055 | 1233 | -0.146 | 463 | -0.089 | 75 | -0.359 | 692 | | | -0.129 | 1442 |
| | | *0.026* | | *0.000* | | *0.391* | | *0.000* | | | | *0.000* | |
| | **b** | 0.040 | 1235 | -0.049 | 463 | 0.087 | 75 | -0.058 | 686 | | | -0.084 | 1415 |
| | | *0.100* | | *0.227* | | *0.390* | | *0.081* | | | | *0.000* | |
| | **c** | 0.061 | 1246 | 0.025 | 467 | -0.001 | 75 | -0.063 | 694 | | | 0.019 | 1417 |
| | | *0.013* | | *0.546* | | *0.996* | | *0.054* | | | | *0.419* | |
| | **d** | 0.041 | 1135 | -0.009 | 431 | -0.172 | 75 | -0.007 | 680 | | | -0.021 | 1201 |
| | | *0.123* | | *0.839* | | *0.082* | | *0.828* | | | | *0.404* | |
| **a859 Opinions others (1 strongly agree; 2 agree; 3 neither agree nor disagree; 4 disagree; strongly disagree)** | **a** | -0.409 | 1091 | -0.276 | 363 | -0.265 | 58 | -0.478 | 470 | | | -0.337 | 1356 |
| | | *0.000* | | *0.000* | | *0.016* | | *0.000* | | | | *0.000* | |
| | **b** | -0.388 | 1162 | -0.223 | 436 | -0.249 | 70 | -0.383 | 559 | | | -0.325 | 1391 |
| | | *0.000* | | *0.000* | | *0.013* | | *0.000* | | | | *0.000* | |
| | **c** | -0.381 | 1225 | -0.265 | 448 | -0.144 | 75 | -0.429 | 630 | | | -0.274 | 1589 |
| | | *0.000* | | *0.000* | | *0.150* | | *0.000* | | | | *0.000* | |
| | **d** | -0.373 | 1202 | -0.268 | 447 | -0.150 | 75 | -0.442 | 613 | | | -0.264 | 1593 |
| | | *0.000* | | *0.000* | | *0.130* | | *0.000* | | | | *0.000* | |

**a411 Intention of breaking up during next 3 yı Intention of breaking partnership during next 3 yrs**

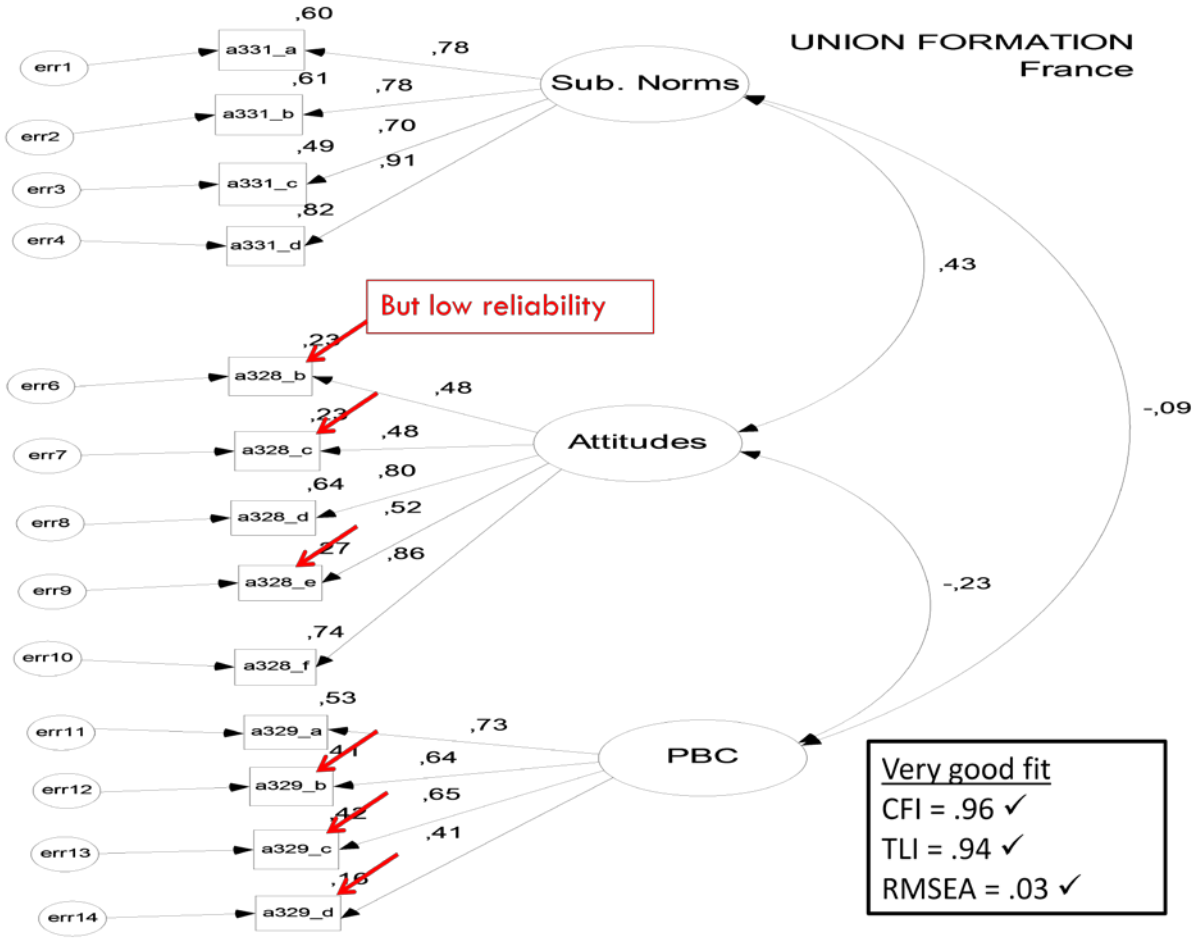
| | | Bulgaria | | Russia | | Georgia | |
|---|---|---|---|---|---|---|---|
| | | Kendall's tau-b | N | Kendall's tau-b | N | Kendall's tau-b | N |
| a412 Effect breaking partnership (1 much better; 2 better; 3 neither better nor worse; 4 worse; 5 much worse) | a | -0.182 | 8312 | | | -0.138 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | b | -0.116 | 6714 | | | -0.120 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | c | -0.159 | 8343 | | | -0.105 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | d | -0.144 | 7733 | | | -0.047 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | e | -0.141 | 8056 | | | -0.133 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | f | -0.222 | 8370 | | | -0.147 | 4570 |
| | | *0.000* | | | | *0.000* | |
| | g | -0.094 | 7325 | | | -0.102 | 4312 |
| | | *0.000* | | | | *0.000* | |
| | h | *-0.099* | *7257* | | | -0.089 | 4312 |
| | | *0.000* | | | | *0.000* | |
| a413 Decision breaking partnership depends on (1not at all; 2 a little; 3 quite a lot; 4 a great deal) | a | 0.125 | 7836 | | | 0.041 | 4570 |
| | | *0.000* | | | | *0.008* | |
| | b | 0.130 | 6713 | | | 0.017 | 4570 |
| | | *0.000* | | | | *0.269* | |
| | c | 0.121 | 7846 | | | 0.040 | 4570 |
| | | *0.000* | | | | *0.011* | |
| | d | 0.076 | 7844 | | | 0.021 | 4570 |
| | | *0.000* | | | | *0.171* | |
| a415 Opinions friends (1 strongly agree; 2 agree; 3 neither agree nor disagree; 4 disagree; strongly disagree) | a | -0.235 | 8149 | -0.386 | 1292 | -0.141 | 4570 |
| | | *0.000* | | *0.000* | | *0.000* | |
| | b | -0.238 | 6723 | -0.353 | 1077 | -0.136 | 3312 |
| | | *0.000* | | *0.000* | | *0.000* | |
| | c | -0.161 | 7035 | -0.349 | 898 | -0.131 | 4312 |
| | | *0.000* | | *0.000* | | *0.000* | |
| | d | -0.233 | 8077 | -0.352 | 1232 | -0.147 | 4570 |
| | | *0.000* | | *0.000* | | *0.000* | |
| Partner thinks partnership should be broken up (1 yes 2 no) | a414 | 0.221 | 8991 | 0.056 | 1174 | 0.096 | 4471 |
| | | *0.000* | | *0.038* | | *0.034* | |

## Appendix 7. Illustrated sample structural equation models for selected decisions

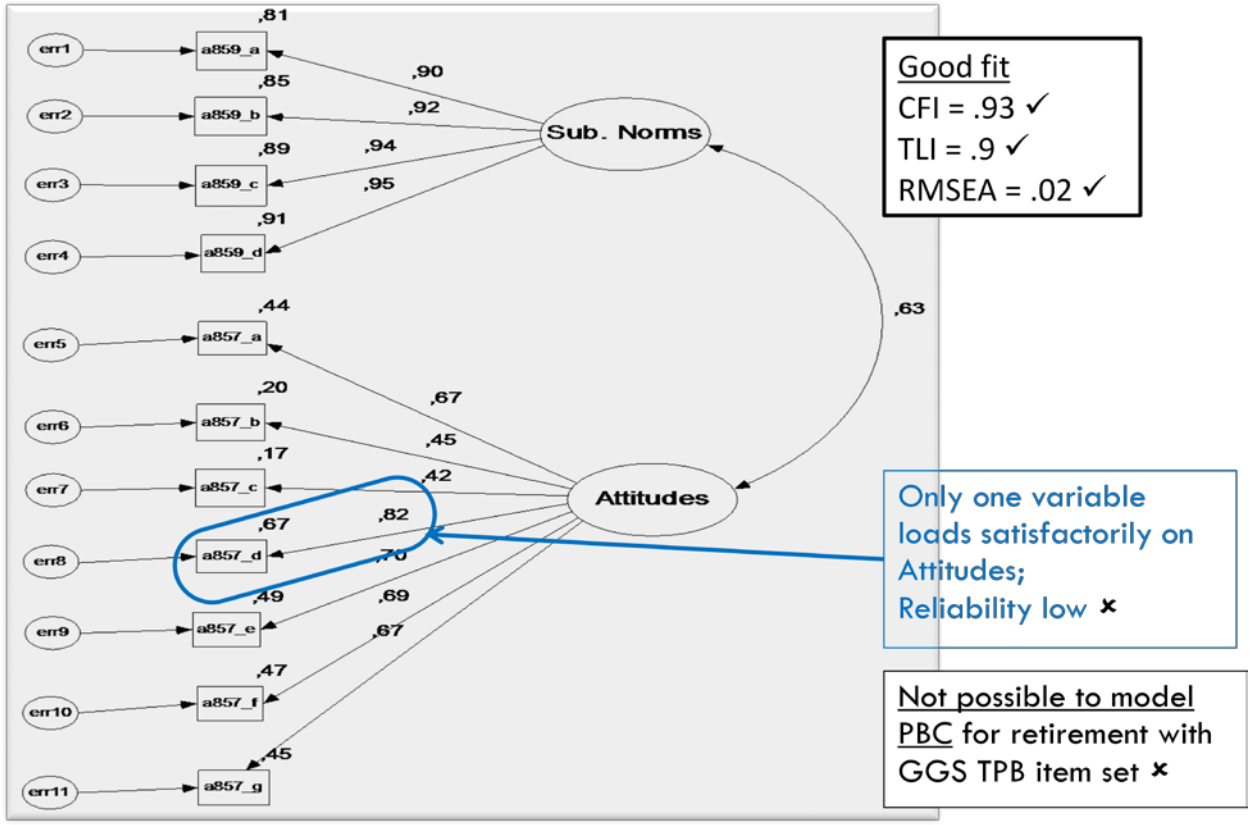
**Appendix 7a. The decision to form a union, all countries, showing measurement and fit problems**



**Appendix 7b. The decision to form a union, France, showing improved measurement and fit**

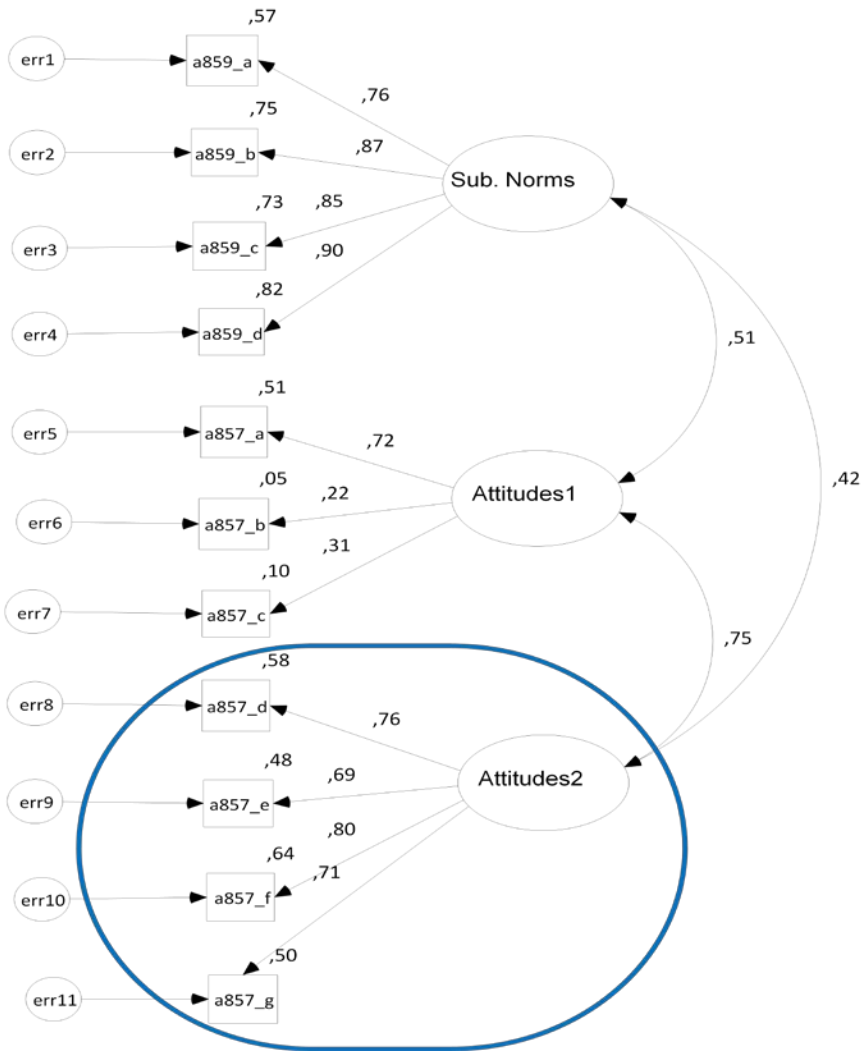


**Appendix 7c. The decision to retire, all countries, showing measurement problems**



**Appendix 7d. The decision to retire, France, showing one satisfactory (and one unsatisfactory) attitudes variable**

Best solution was to retain only Attitudes2 (attitudes to positive outcomes)


,57
err1
a859_a
,76
,75
err2
a859_b
,87
Sub. Norms
,73
,85
err3
a859_c
,90
,82
err4
a859_d
,51
,51
err5
a857_a
,72
,42
,05
,22
err6
a857_b
Attitudes1
,31
,10
err7
a857_c
,75
,58
err8
a857_d
,76
,48
,69
err9
a857_e
Attitudes2
,80
,64
,71
err10
a857_f
,50
err11
a857_g

# Appendix 8. Illustrated sample item response theory results for the decision to have a child

**Appendix 8a. RUMM <www.rummlab.com> threshold map for attitudes to having a child, all countries**

Each threshold, the changeover between a pair of colour bars, is the point at which a response in each of the adjacent categories is equally probable. Response categories have been recoded to 0 (much worse) to 4 (much better).

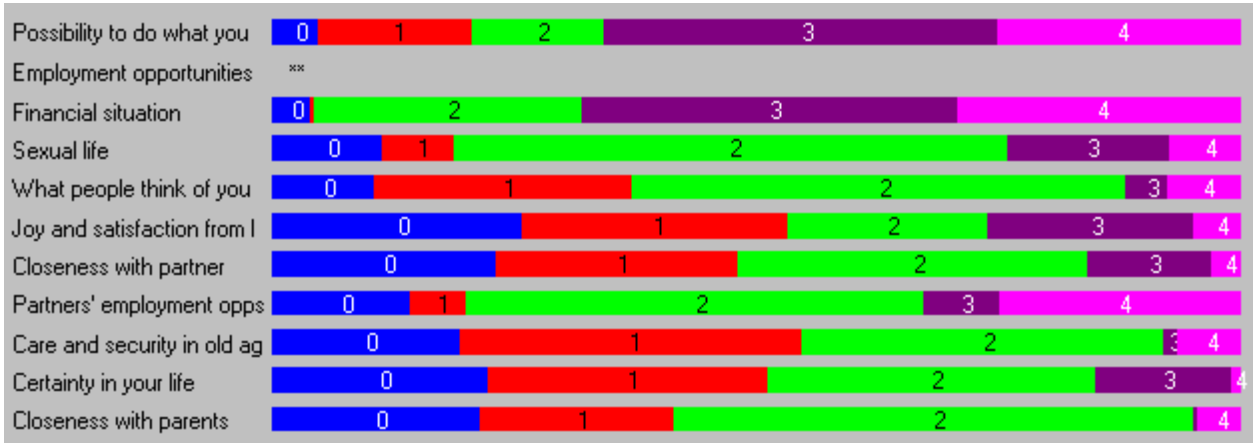
The map shows

a) that it was not possible to determine thresholds for *effect on employment opportunities* (** in the map), a belief that does not seem to form a scale with the others – this might be because it is not a salient belief or because the item was not asked in such a way that the salient belief was tapped.

b) that the response scales for some items did not discriminate well, e.g., it was improbable that any respondent would use the response category 1 *better* (as distinct from *much better* or *neutral*) to the question, *What would the effect of having a child be on your financial situation,* or that a respondent would say that having a child would make it *worse* (3) for closeness with their parents or care and security in old age or *much worse* for certainty in life;

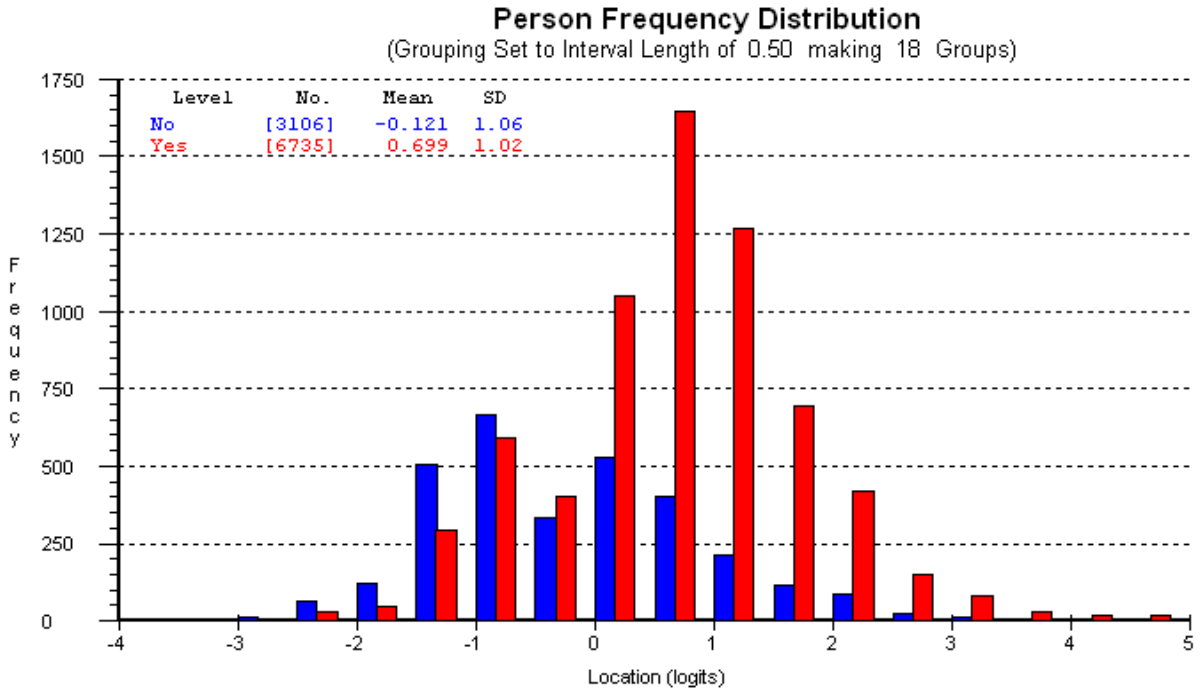
c) the most probably answer to the question on the effect on sexual was *neutral* (the green bar, 2).

Not shown here is that these problems persisted when the file was broken into sub-groups by gender and parity.




**Appendix 8b. Concurrent validity test for uni-dimensional attitude scale without *employment opportunities*, intention to have a child**

The figure shows that the scale discriminates well between those who intend to have a(nother) child and those who do not.




One-way Analysis of Variance

| Source | SumSquare | DegF | MeanSS | F-Stat | Prob |
|---|---|---|---|---|---|
| Between | 1428.62 | 1 | 1428.62 | 1344.190000 | 0.000162 |
| Within | 10457.02 | 9839 | 1.06 | | |
| Total | 11885.65 | 9840 | | | |

## Appendix 9. Results of tests of four different coding schemes for TPB for intention to have a/another child

The 'best' coding scheme, i.e., the scheme that produced the scale most strongly correlated with intention is highlight in green in each control factor (financial situation, work, housing conditions, health). Sample size varies for each control factor, but is always near the value (*n*) provided in the table. Data are available only for the four control factors shown here because control items in the a719 bank were only available for these items. Data are not available for France, where the a719 bank of questions was not asked.

| | Intention (A622r) | | | | | |
|---|---|---|---|---|---|---|
| | **All** | **BG** | **RU** | **GE** | **DE** | **IT** |
| PBCFin1 | .11 | .08 | **.19** | ns | .05[b] | .03[a] |
| PBCFin2 | .04 | .06 | **.11** | .04[b] | ns | ns |
| PBCFin3 | .09 | .07 | **.18** | .03[a] | ns | .04[b] |
| a628_A | -.09 | -.06 | **-.17** | ns | ns | -.06 |
| PBCWork1 | .10 | .10 | **.16** | ns | .08 | .03[a] |
| PBCWork2 | .06 | .06 | **.08** | .04[b] | ns | ns |
| PBCWork3 | .08 | .08 | **.16** | ns | .04[b] | .04[b] |
| a_628_B | -.08 | -.08 | **-.14** | ns | -.07 | -.05 |
| PBCHousCond1 | .07 | .03[a] | .05 | .05 | .05[b] | ns |
| PBCHousCond2 | ns | ns | ns | .04[a] | ns | ns |
| PBCHousCond3 | .06 | ns | .06 | .06 | ns | ns |
| a628_C | -.05 | ns | -.06 | ns | ns | -.06 |
| PBCHealth1 | .04 | .06 | **.14** | ns | ns | -.05 † |
| PBCHeath2 | .09 | .09 | **.10** | ns | ns | .05 |
| PBCHealth3 | .05 | .04 | **.14** | ns | ns | ns |
| a628_D | -.03 | ns | **-.16** | ns | ns | ns |
| Approx. *n* | 32,000 | 7,500[c] | 5,550[c] | 5,350 | 3,900 | 5,920 |

Notes: All $p < .001$ except [a]$p < .05$, [b]$p < .01$. † Wrong direction. [c]Approx. 10% missing responses to a628Work. Highlighted row shows best performing re-code.