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RESEARCH PAPER

Analyzing the Relationship Between Social Capital and Subjective Well-Being: The Mediating Role of Social Affiliation

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Abstract While previous studies have established social capital as an important determinant of subjective well-being (SWB), the broader social context people are living in has not received much attention in terms of SWB. To address this issue, we propose the concept of social affiliation, measuring the feeling of belonging to the social whole, of being a respected and valued member of society. In contrast to standard concepts of social capital, social affiliation is not related to an individual's direct environment ('Gemeinschaft'), but concerns one's relation to society ('Gesellschaft'). Such a subjective evaluation of how an individual feels within a broader societal context is neither covered by traditional concepts of social capital nor by the concept of social cohesion which focuses on the macro level. A perception of oneself as living on the margins of society, of not being a respected member of society, is very likely to diminish subjective well-being. At the same time, it can be expected to not be completely unrelated to individual resources of social capital. Drawing on unique survey data from Japan, we analyze the triangle relationship between social capital, social affiliation and subjective well-being applying a structural equation model. Our results have two main implications. First, we show that social affiliation has an effect on subjective well-being that is independent from the effect of standard measures of social capital. Second, we find that social capital influences social affiliation, and thereby also has an indirect effect on subjective well-being. In terms of theory building our results suggest that social embeddedness has two elements which should be measured separately: a community dimension usually measured as social capital

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in terms of trust, personal networks and norms, and a societal dimension of being and feeling part of a 'Gesellschaft', measured as social affiliation.

Keywords Social capital · Social affiliation · Subjective well-being · Life satisfaction

1 Introduction

The realization–brought about by post-modern societies—that affluence alone does not bring happiness has caused interest in the question of what determines our subjective well-being to grow. Over the past two decades, the concept has received much scholarship, with numerous studies investigating what influences our well-being, first concentrating on individual determinants such as gender, age, educational level, marital and employment status or income, and, more recently, also including aspects of the social context we live in. While some studies comprise objective measures of economic prosperity or institutional settings (i.e. Böhnke 2008; Delhey and Dragolov 2014), others have focused on the role of social capital for individual and societal functioning (Helliwell and Putnam 2004; Tokuda et al. 2010). Although there are many definitions of social capital the most established concepts focus on the three pillars of (a) trust, (b) norms and (c) networks (Bourdieu 1980; Coleman 1988; Putman 1993, 2000). Several studies have explored the relationship between such standard measures of social capital and subjective well-being, with results indicating that a positive relationship between both concepts exists (i.e. Leung et al. 2011).

Recent studies argue, however, that standard measures of social capital have omitted important aspects of an individual's inclusion into society (for an overview of the literature see Lochner 1999). To better assess to what extent individuals are embedded in a society, a number of studies have suggested *social cohesion* as a broader measure of social embeddedness (Berger-Schmitt 2000; Delhey and Dragolov 2015, among others).

We agree that an important dimension of social embeddedness is yet missing in the mainstream literature which mainly relies on traditional concepts of social capital. We also agree with the intention of social cohesion of trying to provide a more comprehensive understanding of the social context. However, while the concept of social cohesion is aimed at the macro level by comparing the degree of social embeddedness in different societies, we instead propose the concept of social affiliation, which focusses on the micro level, measuring individual feelings of belonging to the social whole, of being a respected and valued member of society. Unlike standard measures of social capital, it is not related to an individual's direct environment ('Gemeinschaft'), but concerns one's relation to society ('Gesellschaft') (Tönnies 1887). Such a *subjective* evaluation of how an individual feels within a broader societal context is neither covered by traditional concepts of social capital, nor by the concept of social cohesion. However, a perception of oneself as living on the margins of society, of not being a respected member of society, is very likely to diminish subjective well-being and lead to an experience of social isolation which might come with a deprecatory attitude towards societal values and moral (Böhnke 2004). As this would have implications for society as a whole, we believe this to be an important, but under-researched concept. The aim of our study is twofold. First, we investigate whether there is an effect of social affiliation on subjective well-being that is independent from an effect of standard measures of social capital. Second, we analyze to what extent social

capital influences social affiliation, and thereby also has an indirect effect on subjective well-being mediated via social affiliation.

To test our assumption, we turn to Japan, as several studies have shown that in East Asian cultural contexts happiness tends to be defined in terms of interpersonal connectedness, rather than with regard to personal achievement as is the case in more individualistic European–American cultural contexts (Markus and Kitayama 1991; Uchida et al. 2004). For this reason, we expect to find an independent effect of feelings of social affiliation on subjective well-being, especially in an Asian society such as Japan. Thus, if our hypothesis does not hold for the case of Japan, then it is even less likely that it will hold for Western societies.

2 Literature and Key Concepts

In the following section, we review the literature on the key concepts of our study.

2.1 Subjective Well-Being

Research on subjective well-being (SWB) is a burgeoning field of study at the intersection of economics (Dolan et al. 2008), psychology (Diener et al. 1999) and sociology (Kroll 2011). Although various measures and definitions of SWB exist, this study focuses on SWB in the narrow sense measured as either life satisfaction and/or happiness. In terms of this narrow interpretation of SWB the international literature has identified an array of variables related to life satisfaction and happiness, ranging from socio-economic characteristics (such as income, marital and employment status) to personality, attitudes and beliefs, relationships and the wider economic, social and natural environment (for a review of the literature see Dolan et al. 2008; Diener et al. 1999). Studies on Japan have confirmed many of those findings with Japanese samples (Inoguchi and Fuji 2009; Tiefenbach and Kohlbacher 2015). One major determinant of SWB in any cultural context is social capital in its various forms (Leung et al. 2011).

2.2 Social Capital and Subjective Well-Being

Since its introduction to the social sciences, the concept of social capital has received considerable attention in sociology, economics and political science. Many scholars have adapted and applied the concept in various ways. With myriad definitions that exist, it has become difficult to understand what social capital actually means, to an extent that it has even been questioned whether it can still be seen as an useful concept at all (Bjørnskov and Sønderskov 2013). However, when comparing its most well-known conceptualizations found in Bourdieu (1980), Coleman (1988) and Putman (1993, 2000), it becomes clear that the main pillars of social capital revolve around trust, networks and norms of reciprocity and trustworthiness—with each author putting more emphasizes on one or the other pillar. Most studies on social capital similarly focus more on one or another of these three dimensions, with measures of generalized trust being one of the variables most frequently used (Portela et al. 2013, p. 495). This also applies to studies on the relationship between social capital and SWB.

In his macro analysis on the country level, Bjørnskov (2003) reports a positive correlation between SWB, measured as life satisfaction, and social capital, measured as

generalized trust, perceived corruption and civic participation. In a similar study Bjørnskov (2006) differentiates between Putnam's (1993) three measures of social capital: (1) trust, (2) social norms and (3) associational activities. Although his findings are limited at the macro level, he only finds positive correlation between life satisfaction and trust, while norms and networks do not turn out significant. Slightly different results are reported by studies on the individual level. Leung et al. (2011) for example analyze the correlation between overall happiness and an array of measures of social capital. They apply Coleman's (1988) definition of social capital by measuring it with (1) trust and obligations, (2) information channels, and (3) norms and sanctions. Summarizing their study, they conclude in accordance with Bjørnskov (2006) that "trust… is an essential element of life satisfaction" (Leung et al. 2011, p. 452). However, unlike Bjørnskov they also report significant and positive correlations of other measures of social capital and happiness. In a similar vein, Portela et al. (2013) analyze the relationship between several dimensions of social capital (trust, norms, and networks) as well as various measures for SWB. Supporting the findings reported by Leung et al. they conclude that "particular, social networks, social trust and institutional trust are the components that show a higher correlation with subjective well-being" (Portela et al. 2013, p. 506). Helliwell and Putnam (2004) also find independent and robust relations of social networks, trustworthiness and trust with happiness and life satisfaction, both directly and through their impact on health.

Although in the literature a variety of proxy measures are used to quantify both social capital and SWB, the existing body of literature unequivocally points to a positive relationship between both concepts. The relationship can be considered to be universal as positive evidence has been reported for Latin America (Ateca-Amestoy et al. 2014), Europe (Rodríguez-Pose and Berlepsch 2014) and Asia, especially China (Yuan and Golpelwar 2012), Korea (Han 2015) and Japan (Kuroki 2011; Matsushima and Matsunaga 2015).

2.3 Social Cohesion and Subjective Well-Being

Despite the clear and universal relationship between traditional measures of social capital and SWB, recent studies have identified *social cohesion*—as a different but related concept to social capital[1]—which is not only important for the quality of societies (Berger-Schmitt 2000), but also for individual SWB (Delhey and Dragolov 2015).

While the concept of social cohesion has been subject to theoretical examinations in the past (Berger 1998; Gough and Olofsson 1999), recently policymakers and social policy analysts have shown growing interest in measuring the degree of social cohesion empirically (Dragolov et al. 2013). In a seminal policy paper, Jenson (1998) maps social cohesion along five dimensions. While several other definitions have been brought forward in the last decade (Jenson 1998; Beauvais and Jenson 2002; Berger-Schmitt 2002; Chan et al. (2006); Dickes (2008); Dickes and Valentova (2013); Rajulton et al. 2007; Kearns and Forrest 2000; Jenson 2010; Dragolov et al. 2013), a coherent definition is still missing. However, the different definitions share a common denominator in their relation to social capital. While some dimensions such as *networks* and *participation* are covered by standard measures of social capital, social cohesion goes beyond those measures in two respects. On the individual level social cohesion taps into a sense of belonging—a dimension that is not covered by the concept of social capital. On the macro level social cohesion captures features of the institutional setting under which individuals are living. Further, most authors seem to agree that social cohesion is rather a macro measure of

[1] For a broader overview of related concepts to social capital see Lochner (1999).

societies than a micro measure of individual social ties (Rajulton et al. 2007; Dragolov et al. 2013; Klein 2013; Delhey and Dragolov 2015). Finally, several studies consider social capital to be one dimension or aspect of social cohesion (Berger-Schmitt 2002; Jenson 2010; Chuang et al. 2013), however, as we elaborate in more detail below, we do not share this conception.

Empirical studies on the relationship between social cohesion and SWB are sparse and the existing studies rely on various measures and thus report incoherent findings. Using micro data from Luxembourg, Klein (2013) finds a significant negative relationship between different measures of SWB (happiness and life satisfaction) and *solidarity* as well as *equality* as two of several proxies for perceived social cohesion on the individual level. Controlling for traditional social capital measures, which show a clearly positive relationship with SWB, he concludes that the broader concept of social cohesion "seems to be less adapted for analyses on the micro level" (Klein 2013, p. 908). Chuang et al. (2013) analyze the effect of five dimensions of social cohesion on self reported health using data from 29 high-income countries. They find a positive relationship for the dimensions of social inclusion, social diversity and social capital (which is considered as one dimension of social cohesion). In a study of similar scale Delhey and Dragolov (2015) analyze the relationship between three dimensions of social cohesion and SWB measured as overall life evaluation (combining items on life satisfaction and happiness). They find that all three dimensions—social relations, social connectedness and the common good—are positively related to the overall life evaluation as well as to psychological functioning.

2.4 Exploring the Missing Link: Social Affiliation

Although we agree with the argument that traditional measures of social capital do not account for important information about the social context people are actually living in, we do not think that the concept of social cohesion is an appropriate supplement to social capital when it comes to evaluations of individual well-being. Social cohesion is both a too broad and a too incoherent concept. Its definition is too broad because it covers too many dimensions making it more suitable for comparisons at the macro level (Klein 2013). Further, the concept itself is not coherent, since it mixes up individual measures, such as participation, and aggregate measures, such as the legitimacy of institutions. Nevertheless, we still think that social cohesion captures one important aspect of social live that is not covered by traditional measures of social capital, namely that of a broader societal context. To better identify the effect of the social context on subjective well-being, we suggest the concept of 'social affiliation'. Unlike the concept of social cohesion, social affiliation is a measure of one's individual perception that is only indirectly related to institutional settings and arrangements. It refers to a feeling of belonging to the social whole, of being a respected and valued member of society.[2]

Research on social affiliation and related concepts is scarce, and existing studies often conceive the feeling of belonging to the social whole as a negative measure in terms of subjective experiences of *marginalization* and *disconnectedness* (Böhnke 2004; Bude and Lantermann 2006; Hommerich 2017, Hommerich 2015). Such indicators, which measure subjective experiences of *deprivation* and *social isolation*, have been added to measurement tools of *social exclusion* since the concept was extended in the early 1990s in

[2] Note that, as a subjective measure, such an evaluation does not have to coincide with the actual state of social integration of that particular individual.

order to not only focus on basic needs and a minimum standard of living, but also on opportunities for social, cultural and political participation (Burchardt et al. 2002; Sen 2000). However, as such, social exclusion is a much broader concept, encompassing not only subjective, but also objective measures such as access to public institutions and the labor market.

In other studies, a negative version of social affiliation—that is, the feeling of not belonging to society—is termed *(social) alienation* (Böhnke 2005). We refrain from using a similar terminology for two reasons. First, a strand of research in psychosocial development uses the concept of social alienation in a much broader sense tapping into feelings of pessimism, despair, helplessness, isolation and meaninglessness (Jessor and Jessor 1977). This concept is, further, mainly used in the context of immigration and adolescence (Safipour et al. 2010; Safipour et al. 2011). Second, we think that a positive definition of social affiliation is more appropriate, especially due to the positive relations to social capital and subjective well-being, which are addressed in the following two subsections.

2.5 Social Affiliation and Subjective Well-Being

Studies investigating SWB and its relationship with measures similar to what we coin feelings of social affiliation have reported positive correlations.

Within the concept of Social Quality (SQ), social inclusion is identified as one of four dimensions to be considered when analyzing resources necessary to enhance SWB (Abbott and Wallace 2012). This dimension is measured by a mixture of standard indicators of social capital (general social trust and trust in an immediate social network) as well as a broader question of feeling left out of society. For all measures, Abbott and Wallace (ibid.) find strong relationships with SWB in 27 European countries. Yuan and Golpelwar (2012) replicate this analysis in Shanghai. Their data also indicates a significant negative impact of feelings of being left out of society on SWB.

Keyes (1998) develops five scales (social integration, social acceptance, social contribution, social actualization, and social coherence) measuring aspects similar to our concept of social affiliation. When investigating the validity of the scales with several validation criteria he finds that the "scales correlate positively and modestly with the indicators of life satisfaction and life happiness" (ibid., p. 131).

Böhnke (2005) uses the above mentioned concept of 'alienation'—sometimes synonymously termed feelings of belonging or marginalization—as a dimension of well-being (or rather ill-being) which complements life satisfaction and individual happiness. She finds that distribution patterns of levels of alienation were similar to those of life satisfaction and happiness across 28 European countries, with low levels of alienation in countries with high levels of life satisfaction and happiness (ibid., p. 16). This finding suggests that social alienation is not a separate construct, but rather one integral aspect of global SWB. However, the strengths of the correlations in Böhnke's study indicate that alienation, happiness and life satisfaction cannot be seen as three distinct sub-dimensions of an overarching concept of well-being. While life satisfaction and happiness showed a strong positive correlation (.65), the relationship with alienation is much weaker (−.38 for life satisfaction, −.32 for happiness) (ibid., p. 20). These results clearly suggest that social alienation, and similarly also social affiliation, is in itself not a measure of SWB in the narrow sense of overall life evaluation.

Theoretically the empirical findings regarding the link between social affiliation and SWB are supported by Self-Determination-Theory (SDT). Building on SDT the feeling of being embedded in the social whole is related to personal development and SWB by stimulating three innate psychological needs for *competence*, *relatedness*, and *autonomy* (Deci and Ryan 2000; Deci and Vansteenkiste 2004). Living in a specialized economy under the division of labor, personal competence is almost exclusively defined by successful interaction with and appreciation by fellow citizens which is in turn related to feelings of social affiliation. Similarly, being a respected member of society is related to autonomy, since the former implies that (1) the autonomous decisions of individuals are respected by society and that (2) the individuals are able to influence the social decision process. Finally, the feeling of belonging to the social whole directly satisfies the need of relatedness. By stimulating those three psychological needs social affiliation positively affects SWB.

2.6 Social Affiliation and Social Capital

Regarding the relationship between social affiliation and social capital we agree with Berger-Schmitt (2002: p. 406) that "[i]n principle, strong ties within a community can be accompanied by the tendency to discriminate and exclude those people who do not belong to that community." Accordingly, "societies can be rich in social capital within social groups, and yet experience debilitating poverty, corruption and conflict" (Narayan 1999: p. 8). This seeming paradox of highly cohesive in-groups which results in an overall fragmentation of society due to a lack of "weak ties" has also been discussed rather prominently by Granovetter (1973). If individuals can feel a strong relation to their community and at the same time, feel alienated or marginalized from society, then measures of social embeddedness need to distinguish between resources of traditional social capital in the context of what Tönnies (1887) defines as 'Gemeinschaft' on the one hand and with regard to 'Gesellschaft', in terms of social affiliation, on the other. However, showing that social capital and social affiliation represent two separate aspects of social embeddedness does not imply that they are unrelated or that they stand orthogonal to each other. Although we consider social capital and social affiliation to be separate concepts, we still assume that social capital positively influences feelings of social affiliation. One of the reasons for this assumption is that the process of evaluating one's position within society is a form of social cognition. As such, it is not completely independent from one's immediate social context (Howard 1994). What an individual imagines and considers as 'society' depends partially on relationships of trust she has formed in early childhood, something that Giddens calls one's 'protective cocoon' (1991, p.54). This argumentation is supported by developmental psychology. While trust is formed in very early childhood, the tentative self-determination to one's role in society is developed much later in life (Buhler 1962). Similarly, Phillips (2006: p. 142) argues that social cohesion is achieved in a process of aggregation of social capital which evolves in three steps. The (1) emergence of social trust in face-to-face relationships develops into (2) vertical trust in hierarchical and non-face-to-face relationships, which finally leads to (3) social cohesion in terms of a commonly agreed sense of civic responsibility. Brought into the terminology of our study, Phillips makes a strong case for trust as a facilitator of social affiliation.

Studies that support this theoretical claim are scarce to the extent that the relationship between standard measures of social capital and social affiliation has not yet been investigated explicitly. One major reason for this apparent lack of empirical

investigation is the fact that measures of social capital and social affiliation are often conceived as different facets of an overarching construct. One example is Keyes' (1998) usage of five scales to measure "the appraisal of one's circumstance and functioning in society" (ibid., p. 122). While standard measures of social capital are covered by his scale of *social acceptance*, his scale of *social integration* comes close to our concept of social affiliation. Similarly, Dragolov et al. (2013) develop a larger construct of social cohesion which consists of several items nested into three dimensions: connectedness, social relations and focus on the common good. Social identification, an item measuring connectedness, comes close to our concept of social affiliation, while social networks and trust in people (items measuring social relations) represent standard measures of social capital. Finally, Abbott and Wallace (2012) use the feeling of being left out of society (a negative version of social affiliation) and general trust (social capital) to measure the concept of social quality. The fact that social affiliation and social capital are used to measure a common, larger construct indicates that they are positively correlated to a certain extent. However, neither of the studies mentioned above addresses the issue whether and how these different aspects, items and scales might be interrelated.

First empirical evidence of the connection between standard measures of social capital and social affiliation is presented by Böhnke (2004) who shows that low resources of social capital contribute to feelings of (societal) alienation. Considering the theoretical and methodological arguments presented above, our study not only contributes to a better understanding of the social drivers of SWB, but it also sheds light on the under-researched relationship between standard measures of social capital and social affiliation.

3 Theoretical Framework and Hypotheses

Building on the literature reviewed above, we argue that SWB (measured in terms of overall life evaluation), traditional measures of social capital (such as trust, networks and norms), as well as social affiliation are three related, but *separate* concepts. To support this argument, we estimate the correlation coefficients of our measures of social capital, social affiliation and subjective well-being under sub-Sect. 4.6. To anticipate some of our findings, the results of our correlation analysis corroborate the establishment of social affiliation as a separate concept (cp. Table 1, sub-Sect. 4.6).

In a next step, we develop hypotheses about the entangled relationships between social capital, social affiliation and SWB.

Considering the vast amount of studies relating traditional measures of social capital to SWB (cp. literature discussed in Sect. 2.2) as well as studies that show that social capital is positively related to SWB even when controlling for a broader social context (Klein 2013) we assume that:

Hypothesis 1 (**H1**): Higher resources of social capital result in higher levels of subjective well-being even when controlling for feelings of social affiliation.

The more abstract feeling of not being a full member of society is hypothesized as something that exists separately from trust in a tangible social network. Based on results by Abbott and Wallace (2012) and Yuan and Golpelwar (2012) we expect stronger feelings of

social affiliation to be associated with higher levels of SWB even when controlling for traditional measures of social capital:

Hypothesis 2 (**H2**): Stronger feelings of social affiliation result in higher levels of subjective well-being even when controlling for traditional measures of social capital.

Based on (a) the strong theoretical arguments presented under 2.6, (b) the apparent correlation between measures of social capital and social affiliation in larger constructs and (c) the existing preliminary empirical evidence, we expect feelings of social affiliation to be influenced by standard measurements of social capital such as trust, networks and norms:

Hypothesis 3 (**H3**): Higher resources of social capital result in higher feelings of social affiliation.

According to hypotheses H2 and H3, we expect that (1) social affiliation has an independent effect on SWB and that (2) part of the total effect of social capital on SWB is mediated by social affiliation. Hence, we hypothesize that the impact of social capital on SWB is partially mediated by feelings of social affiliation, with an increase in social capital not only leading to a direct increase in SWB, but also to an increase in feelings of social affiliation which in turn (indirectly) positively affect SWB:

Hypothesis 4 (**H4**): The impact of social capital on subjective well-being is partially mediated by feelings of social affiliation.

Figure 1 summarizes our conceptual model and hypotheses.

Despite large variation with regard to measurement models, the studies quoted above support our assumption that feeling as part of society contributes to SWB. However, the few studies analyzing the relationship between social capital and SWB which have included concepts similar to social affiliation do not take into account possible interrelations between measures of social capital and related concepts. Based on our earlier argument and the studies reviewed above, we expect (a) the existence of an independent direct effect of social affiliation on SWB, and that (b) the total effect of standard measures of social capital on SWB is partly mediated by social affiliation. Previous studies have either subsumed these different aspects of social capital under one dimension or they have not considered the relationship between feelings of social affiliation and SWB at all. With the present paper we fill this gap by applying a mediation model to disentangle the direct and indirect effects of standard measures of social capital on SWB partially mediated by social affiliation. Our paper further sheds

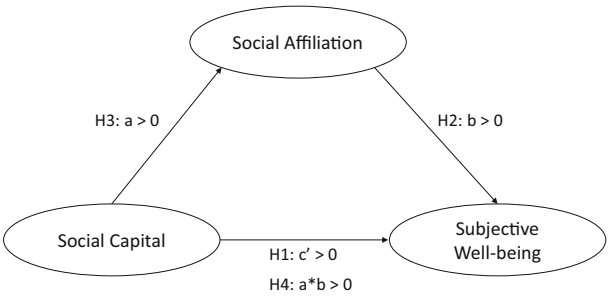

Fig. 1 Conceptual model

light on the under-researched relationship between standard measures of social capital and social affiliation.

4 Methodology

4.1 Data

To answer our research questions, we use data from a Japanese nationwide postal survey collected in September 2009. We chose this unique data-set, since it includes measures for all three concepts of interest: social capital, social affiliation and subjective well-being. The questionnaire was designed by the authors, with data collection being carried out by Chūō Chōsa-sha, one of Japan's leading social research institutes. Two-stage stratified random sampling was used to draw an original sample of 5000 respondents of 20 years and above from the population registry at 250 sampling points throughout the country. With a response rate of 32.7%, 1633 questionnaires were collected for analysis. Comparison with the original sample as well as with the data of the 2005 Japanese Census shows that the realized sample gives a good model of Japanese society in terms of gender, age, and region.

4.2 Preliminary Analyses

Before testing the hypotheses, the data were screened for univariate and multivariate outliers. Examination of histograms and scatterplots indicated that there were no serious violations of the assumptions of normality. Most scales showed to be positively or negatively skewed and departed from zero kurtosis. However, in light of the underlying constructs measured, this was to be expected. As the overall sample size was well above the threshold of 200 cases recommended by Tabachnick and Fidell (2013: 80), this did not make a substantive difference to the analysis. Bootstrapping was used to obtain the significance levels and confidence intervals of the indirect and total effects. As this procedure is not available with incomplete data, cases within the data set that included missing values were deleted from the analysis. The delimited data set contained 1345 cases.[3] Data analysis was carried out using AMOS for SPSS 20.0.

Before summarizing the results of the statistical analysis, the indicators used to construct and test the SEM are described.

4.3 Demographic and Socioeconomic Indicators

To control for the demographic and socioeconomic context, gender, age, educational level and income as well as labor market participation were included as exogenous variables, as they have been shown to impact on social capital, social affiliation or subjective well-being in the literature. In the interest of parsimony, the control variables are limited to the most important demographic and socio-economic characteristics. Including more controls, as

[3] An estimation of the model with incomplete data would exhibit less bias than excluding cases with missing values from the analysis (Byrne 2010: 359). However, an estimation of the model with missing values only yielded marginally different results than with the delimited data set. Therefore, the authors decided to proceed with the data set from which missing data had been deleted.

well as running only the core model without any controls yields qualitatively similar results.

To not overstretch the length of the paper, we do not include a discussion of the expected effects of the control variables here, but discuss this together with the results under Sect. 6.2. The sample distribution regarding the demographic and socioeconomic indicators are displayed in Table 3 (cp. Appendix). Gender was coded as 0 for males and 1 for females. Age ranged from 20 to 93 years, with the mean age lying at 51.2 years. Educational levels were assessed by asking for the highest educational level achieved, ranging from middle school as the lowest, and post-graduate education as the highest level. The self-reported annual household income was adjusted for household size with an elasticity of .5 to reflect the individual financial situation (Förster and D'Ercole 2009: 7–8). Four income groups were formed to display the income distribution of the sample in Table 3 (cp. Appendix), which are based on the median annual household income of 2240,000 Yen published by the MHLW for 2009.[4] Labor market participation was coded as 0 for non-working respondents and 1 for respondents who were gainfully employed.

4.4 Social Capital (SC)

In our definition of social capital we build on Putnam (1993) and differentiate between the three elements of (1) trust, (2) networks and (3) norms. Following previous studies (Leung et al. 2011; Rodríguez-Pose and Berlepsch 2013; Han 2015), we proxy social capital using four statements which respondents were asked to rate on a 7-point-scale from 1 "does not apply to me at all" to 7 "strongly applies to me":

1. I can trust most people. (SC1)
2. In times of trouble, I can rely on someone. (SC2)
3. If I worry about something, there is someone who helps me. (SC3)
4. I can definitely trust my friend's promise. (SC4)

Whereas the item "I can trust most people" (SC1) relates to generalized (social) trust, the next two items (SC2, SC3) relate to the social support function provided by one's personal network. Finally, we measure the prevalence of norms by using the example of the norm to keep one's promise (SC4). Especially in Japan, it is important to not rely solely on a generalized trust proxy for social capital, since previous research indicates that Japanese have higher trust in particular relations and often score low on generalized social trust (Yamagishi and Yamagishi 1994). With a Cronbach's α of .77 the four items showed internal consistency and, thereby, acceptable reliability. (For means and standard deviation of the single items, cp. Table 4 in the Appendix).

[4] The lowest income group earns less than 1,120,000 Yen. This corresponds to less than 50% of the official median income in 2009, which is the threshold set by the Japanese government to define relative poverty. Respondents who fall into this category are highly likely to face socioeconomic difficulties. Middle incomes are divided into two groups with incomes ranging from 1,120,000 to 2,240,000 Yen (50–100% of median income) categorized as lower middle, and incomes ranging from 2,240,000 to 3,360,000 Yen (100–150% of median income) grouped as upper middle of the income range. The highest income group earns over 3,360,000 Yen, which equals more than 150% of the median income.

4.5 Social Affiliation (SA)

To capture feelings of social affiliation, we use a scale developed by Bude and Lantermann (2006) for Germany. The scale consists of six items measuring feelings of not belonging to the social whole. In this survey, it was used in a Japanese context for the first time.[5] Cronbach's α of .91 indicates high homogeneity, so that the scale can be considered reliable in the Japanese context. The six statements were rated on the same 7-point-scale as the items measuring social capital and coded in reverse for the structural equation model. (For means and standard deviation of the single items, cp. Table 5 in the Appendix):

1. I am worried that society leaves me behind. (SA1)
2. Society does not care about me. (SA2)
3. I feel like I do not really belong to society. (SA3)
4. I do not see a place in society in which I am being taken seriously. (SA4)
5. I feel that nobody needs me. (SA5)
6. I feel excluded from society. (SA6)

4.6 Subjective Well-Being (SWB)

To measure SWB, the following three items were used which respondents rated on the same 7-point-scale as above (*Cronbach* $\alpha = .77$):

1. Overall, I am satisfied with my life as it is. (SWB1)
2. I lack many things which I would need in order to lead a happy life. (SWB2)
3. Compared to others, I lead a happy life. (SWB3)

Apart from a standard measure of overall life satisfaction (SWB1), we further include a material measure of SWB (SWB2), since previous studies show that the material (Cummins 1996) and the financial domain (Loewe et al. 2014) are key elements of life satisfaction. Further, life satisfaction measures are biased by the individual degree to which someone compares him- or herself to others (Schneider and Schupp 2014), which is why we included a comparative measure in our construct of SWB (SWB3). (For means and standard deviation of the single items, cp. Table 6 in the Appendix).

The correlation matrix for all independent variables is displayed in Table 1. Multicollinearity was not a problem, as the inter-correlations did not exceed .90 (Tabachnick and Fidell 2013). Correlations between items used to measure social affiliation and standard measures of social capital were weak, ranging between −.08 and −.29, indicating that both represent independent concepts. Similarly, measures of social capital and SWB were only weakly correlated (.14 to .33). Inter-correlations of items of social affiliation and SWB were slightly stronger (−.26 to −.40), but also remained weaker than correlations within the respective construct. This supports our assumption that social affiliation is neither an alternative measure of well-being nor an additional item of social capital, but represents an independent concept.

[5] To ensure equivalency in meaning, the items were first translated from German into Japanese by a native Japanese speaker. The Japanese version of the scale was then pre-tested with 10 native Japanese respondents from different age groups and educational levels. Next, problems discovered in the pre-test were discussed at a workshop with eight Japanese experts in survey research and two German researchers who are fluent in Japanese. The Japanese version which resulted from this was then back-translated into German by a native German speaker who did not know the original scale. This back-translation showed that the intended meaning was preserved.

Table 1 Means, standard deviations, and correlations between the items used to measure the three latent constructs (n = 1345)

Variable	M	SD	SA1	SA2	SA3	SA4	SA5	SA6	SC1	SC2	SC3	SC4	SWB1	SWB2
SA1 I am worried that society leaves me behind.	3.31	1.41												
SA2 Society does not care about me.	3.34	1.35	.61**											
SA 3 I feel like I do not really belong to society.	3.07	1.34	.61**	.74**										
SA4 I do not see a place in society in which I am being taken seriously.	3.16	1.34	.54**	.71**	.72**									
SA5 I feel that nobody needs me.	2.92	1.40	.46**	.55**	.57**	.66**								
SA6 I feel excluded from society.	2.46	1.23	.56**	.59**	.65**	.66**	.67**							
SC1 I can trust most people.	4.31	1.19	−.08**	−.15**	−.13**	−.18**	−.21**	−.15**						
SC2 In times of trouble, I can rely on someone.	4.57	1.24	−.10**	−.16**	−.11**	−.17**	−.17**	−.13**	.40**					
SC3 If I worry about something, there is someone who helps me.	4.98	1.15	−.21**	−.24**	−.22**	−.26**	−.29**	−.28**	.53**	.40**				
SC4 I can definitely trust my friend's promise.	4.79	1.12	−.13**	−.15**	−.12**	−.15**	−.20**	−.18**	.39**	.50**	.54**			
SWB1 Overall, I am satisfied with my life as it is.	4.44	1.47	−.34**	−.27**	−.27**	−.28**	−.26**	−.30**	.22**	.23**	.26**	.18**		
SWB2 I lack many things I would need in order to lead a happy life. (reverse coding)	4.65	1.36	−.39**	−.35**	−.38**	−.37**	−.35**	−.40**	.14**	.16**	.23**	.15**	.51**	
SWB3 Compared to others, I lead a happy live.	4.68	1.18	−.32**	−.31**	−.32**	−.32**	−.33**	−.34**	.23**	.20**	.33**	.22**	.65**	.48**

** $P < .01$. The six items measuring social affiliation (SA1-6) are here used in their original scale with 1 = 'does not apply at all' and 7 = 'totally applies'

4.7 Covariates

In order not to report spurious correlations, we control for gender, age, education, income as well as labor market participation in the model. Those are standard variables in the happiness literature and research shows that they also apply to the case of Japan (Tiefenbach and Kohlbacher 2015). To control for all possible direct and indirect effects of the demographic and socioeconomic context as measured by the five variables used here, we include all possible paths to social trust, feelings of disconnectedness and civic engagement in the hypothesized model. As a robustness check, we also estimate the core model using only the variables of interest without including any of the controls in the regression.

5 Statistical Analysis

For the empirical test of the research hypotheses the theoretical model was translated into a structural equation model (SEM). Other than a multiple regression analysis, the SEM-approach allows for the simultaneous modeling of a number of multivariate relationships and for the estimation of direct as well as indirect effects which are mediated through other variables in the model. Further, it is possible to incorporate both observed (manifest) as well as latent variables, which allows for a more accurate estimation of the measurement error of the latent constructs (Byrne 2010: 3). As the analysis is based on cross-sectional data, it is important to keep in mind that the variables do not have a temporal order. Assumptions of a causal order of the associations between variables are developed from theory (Schumacker and Lomax 2010: 48).

5.1 Fit Indices

The following six indices of goodness-of-fit were used to appraise the model (Bagozzi and Yi 2012): the Chi square statistic; the Root Mean Square Error of Approximation (RMSEA), which reports the average amount of misfit for a model per degree of freedom (Steiger 1990); the Tucker-Lewis-Index (TLI) (or non-normed fit index) which rewards model parsimony and penalizes model complexity; the Comparative Fit Index (CFI) (Bentler 1990) which functions as an indicator of relative non-centrality between a hypothesized model and the null model of modified independence; and the standardized root mean square residual (SRMR) which is the square root of the average square residuals. As conservative cutoffs, Hu and Bentler (1999) recommend the following values: RMSEA $\leq$ .06, TLI $\geq$ .95, CFI $\geq$ .95, and SMRS $\leq$ .08. Marsh et al. (2004), however, claim that the following standards still indicate an acceptable fit: RMSEA $\leq$ .07, TLI $\geq$ .92, CFI $\geq$ .93, and SMRS $\leq$ .07.

5.2 Confirmatory Factor Analysis

To evaluate construct validity a two-step approach was used, assessing the measurement model first, before moving on to the simultaneous estimation of the measurement and structural model (Anderson and Gerbing 1988). Confirmatory factor analysis (CFA) (Brown 2006) lent support to the argument that for all latent variables the chosen items measure the respective construct they were assigned to (Goodness-of-fit of the

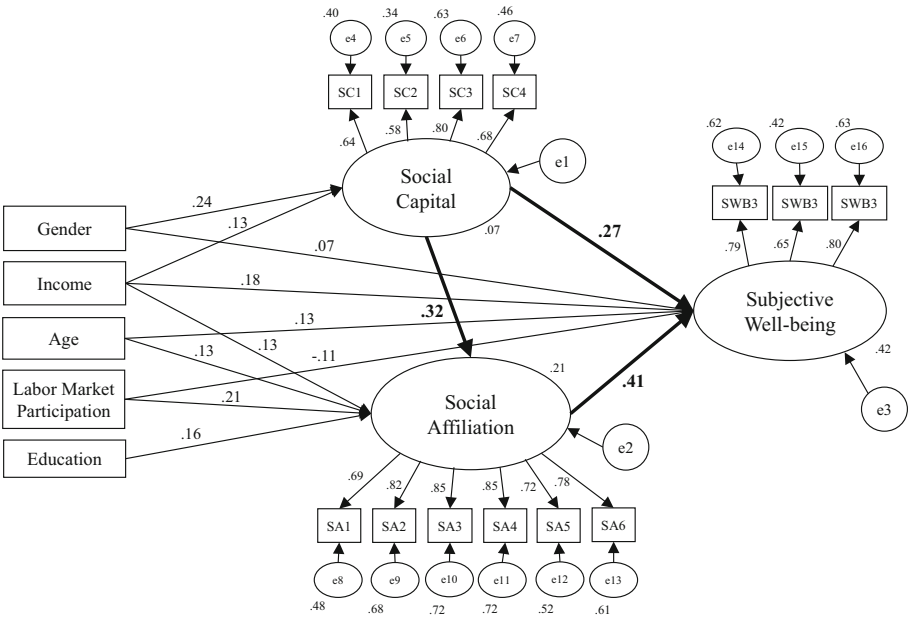

Fig. 2 Respecified structural equation model showing standardized path coefficients. Goodness of fit indices: X^2 (117) = 735.289, p = .00, RMSEA = .063 (90% CI = .058–.067), CFI = .934, TLI = .914, SRMR = .041. Correlations between the control variables are displayed in Table 7 (cp. Appendix)

Table 2 Direct, indirect, and total effects on social capital, social affiliation and subjective well-being as standardized betas

	Social capital			Social affiliation			Subjective well-being		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Education				.16**		.16**		.07**	.07*
Income	.13**		.13**	.13**	.04**	.17**	.18**	.10**	.28**
Gender	.24**		.24**		.08**	.08**	.07*	.10*	.17**
Labor market participation				.21*		.21*	−.11**	.09*	−.03
Age				.13**		.13**	.13*	.05**	.18*
Social capital				.32**		.32**	.27**	.13**	.40**
Social affiliation							.41**		.41*

* $P < .05$, ** $P < .01$, *** $P < .001$ (P-values of the indirect and total effects relate to bootstrap 90% bias-corrected confidence intervals). The confidence intervals of the bootstrapped effects are available upon request

Reference groups are as follows: gender = male; labor market participation = non-working

measurement model: X^2 (112) = 728.447, P = .00,[6] RMSEA = .064 (90% CI = .060–.068), CFI = .934, TLI = .910, SRMR = .041.).[7]

5.3 Structural Equation Model

Next, the structural equation model which includes our hypothesized paths and control variables, was estimated based on the assumptions of maximum likelihood.[8] Five of the relationships included in the initial hypothesized model did not contribute to the model. Neither age, nor education or labor market participation were significantly linked with social capital. Education was further not significantly linked with SWB. Lastly, feelings of social affiliation did not differ significantly according to gender.

The model was respecified without these five linkages, in favor of parsimony (model fit after respecification: X^2 (117) = 735.289, P = .00, RMSEA = .063 (90% CI = .058–.067), CFI = .934, TLI = .914, SRMR = .041). The measurement results were only slightly improved, with no change in CFI and SRMR and minimal improvement in RMSEA and TLI. As the more parsimonious model also made for a clearer visual experience, the respecified model became the model of choice for the hypothesis test. Discussion, however, will also include implications of the removed non-significant paths.

6 Results

The four hypotheses were tested based on the results yielded by the respecified model (Fig. 2).[9] Table 2 presents the standardized betas of the direct, indirect and total effects of each variable in the model on the three latent constructs.

6.1 Main Results

Hypotheses 1, 2 and 3 were supported by the results of the SEM analysis, as all three relevant relationships were significant and of expected sign:

- The direct effect of social capital on SWB (.27) was positive, indicating that higher resources of social capital lead to higher levels of SWB (H1) even when controlling for social affiliation.

[6] The significant Chi square seemingly indicates that the fit of model to the data is not adequate. However, as Chi-square is sensitive to sample size, a non-significant Chi-square is difficult to achieve and has proven unrealistic in most empirical research (Byrne 2010: 76–77, Bagozzi and Yi 2012: 28). To address these limitations of the Chi-square, a number of alternative, more practical fit indices have been developed, which are commonly used as adjuncts to the Chi-square statistic. The authors here use the four indices discussed above.

[7] Detailed results on the CFA model are available from the authors upon request.

[8] Goodness of fit indices for the full structural equation model with controls before respecification: X^2 (112) = 728.447, p = .00, RMSEA = .064 (90% CI = .060 to .068), CFI = .934, TLI = .910, SRMR = .041.) Estimating the model without control variables leads to qualitatively similar results which are available upon request.

[9] In the structural equation model, the six items measuring social affiliation (SA1-6) were coded in reverse with 1 = 'totally applies' and 7 = 'does not apply at all'. High values, therefore, indicate strong feelings of social affiliation.

- The effect of feelings of social affiliation on SWB was positive (.41), lending support to hypothesis 2 that stronger feelings of social affiliation result in higher estimations of personal happiness (H2).
- In concurrence with hypothesis 3, the relationship between social capital and feelings of social affiliation was also significant (.32), indicating that trust in a tangible social network affects feelings of belonging to the social whole (H3).

Hypothesis 4, that the impact of social capital on SWB is partially mediated by feelings of social affiliation, was also supported. The total effect of social capital on SWB (.40) was mediated by 32.5% through feelings of social affiliation (indirect effect of social capital on SWB = .13) (H4).

6.2 Additional Results

In addition to the main findings reported above, we shortly review the results of the covariates and their relation to the variables of interest: social capital, social affiliation and SWB.

Similar to previous studies we find that, compared to men, women show a higher level of SWB (Graham and Chattopadhyay 2012). Similarly, women also show higher levels of social capital, although the literature usually reports social trust to be higher in men (Buchanan et al. 2008; Wang and Yamagishi 2005). Social affiliation, on the other hand, is not influenced by gender. Given that about half of the total effect of gender on SWB is mediated by social capital, our results provide one key element to the still unsolved puzzle that in almost all countries of the world, women show higher levels of SWB (Graham and Chattopadhyay 2012). However, although different levels of social capital can explain the gender gap in SWB to some degree, a full explanation is still lacking.

In accordance with previous studies we find that income is not only an important predictor of social capital but also of social affiliation (Böhnke 2004). This also reverberates to SWB. Here, we find not only a direct positive effect of income (.10), as is also commonly reported in the literature (Clark et al. 2008), but also that about 30% of the total effect of income on SWB is mediated via social capital and social affiliation. This means that income influences individual happiness not only directly, but that its positive effect on the social and societal embeddedness of an individual further enhances his or her SWB. The calculation of such indirect effects is one of the merits of structural equation modeling, making it possible to uncover mechanisms which otherwise would go unnoticed.

With regard to education we do not find a significant relationship with social capital. This seems to differ from results reported in previous research. There, social capital is often related to high levels of education, due to a positive correlation between education and social trust (for an overview cp. Huang et al. 2011). We also find such a correlation in our case. However, a positive correlation between education and social trust (SC1) is offset by the three other social capital measures (SC2-4) which are not related to education. There is a direct relationship with education, however, with regard to whether or not an individual feels to be a valued and respected part of society, with higher levels of education resulting in stronger feelings of social affiliation. It is only via this effect, that education impacts positively on SWB.

When we look at the age effects we find that, for our data, there is no direct relationship of age and social capital. Results of previous research on this matter remain inconclusive, with some studies suggesting an accumulation of social capital with age, and others arguing for its decline over the life course (cp. McDonald and Mair 2010 for a discussion of the relevant literature). Our result could be indicative of changing patterns of social

capital across the life course, as reported in several studies (Lambert et al. 2006; McDonald and Mair 2010), with an accumulation of some social capital resources and decline of others. Levels of social affiliation and SWB seem to increase with age. We further observe an indirect effect of age on SWB via social affiliation. This implies that about a third of the positive effect of age on SWB is caused by an increase in feelings of social affiliation over the life course.

Finally, we find that participation in the labor market has a positive direct effect on social affiliation, and at the same time, a negative direct effect on SWB which, in total, cancel each other out (total effect = insignificant). Regarding social capital, labor market participation is insignificant. Our results regarding social affiliation and labor market participation are consistent with the literature on social cohesion, which identifies equal access (inclusion) to institutions, such as the labor market, as one important element of social cohesion (Jenson 1998). With regard to SWB, results need to be interpreted with great care, as the two groups are rather heterogeneous.[10]

7 Concluding Discussion

Our results have two main implications. First, we show that—as expected—social affiliation has an effect on SWB that is independent from the effect of standard measures of social capital. Keeping social capital constant, a change in one standard deviation in social affiliation leads to a change of .41 standard deviations in SWB. Second, we find that social capital influences social affiliation, and thereby also has an indirect effect on SWB. A change of one standard deviation in social capital, leads to a .32 standard deviation increase in social affiliation, which in turn leads to an increase in SWB of .13 standard deviations. This amounts to a total difference in SWB by .40 standard deviations, for people who differ one standard deviation in resources of social capital.

Our results clearly show, that feeling as part of the social whole is, in terms of SWB, just as important as having resources of social capital measured in terms of trust, networks and norms. The total effect of social affiliation (.41) on SWB is even slightly bigger as the total effect of social capital (.40).

On a methodological level, our study has implications for research on social capital in general regarding the question which dimensions of social capital should be summarized within the same construct, and which dimensions should be treated as related but different measures. We make a strong case for measuring social affiliation as a separate construct. This is not only validated by the correlation matrix reported above (Table 1), but also by the results of our SEM model. Measuring social affiliation as part of social capital excludes the possibility to disentangle the well-being effects of being part of a community network and of feeling as a part of the social whole. Further, even when controlling for social capital, social affiliation has a significant, sizeable effect on SWB. This alone indicates that an important aspect related to social capital has been neglected so far. In terms of theory building our results suggest that social embeddedness has two elements which should be measured separately: a community dimension usually measured as social capital in terms

[10] This is especially the case for the group of the non-employed, which includes involuntarily unemployed (n = 184), who have been reported as having comparatively low levels of subjective well-being (Hommerich and Kobayashi 2015), as well as students (n = 5), homemakers (n = 135) and retirees (n = 58). The latter two groups usually display comparatively high levels of subjective well-being (ibid. as well as Tokuda et al. 2010).

of trust, personal networks and norms, and a societal dimension of being and feeling part of a 'Gesellschaft', measured as social affiliation.

Nevertheless, we are aware that our study comes with a number of caveats. While our results are intriguing, their implications are, at this point, limited to the East Asian context of Japan. Follow-up studies have to examine whether in Western societies (1) social affiliation has an effect on SWB independent of social capital, and (2) whether social capital and social affiliation show a similar correlation. Moreover, we emphasize again that the use of causal language in talking about the social context of SWB (even as we have done for stylistic convenience) is premature, because of the possibility of reverse causation, selection as well as adaptation effects. Future research should make use of panel data to account for endogeneity and causality issues.

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Compliance with Ethical Standards The authors declare that the submitted work complies with the accepted principles of ethical and professional conduct in scientific research and that there are no conflicts of interest. The respondents participated voluntarily in the survey. Beforehand, they received information about the purpose of the study as well as about the institution commissioning the survey.

Conflict of interest The authors declare that there are no conflicts of interest.

Appendix

See Tables 3, 4, 5, 6, and 7.

Table 3 Summary of the sample distribution of the demographic and socioeconomic indicators

Variable	Category	n	%
Gender	Male (=0)	664	49.4
	Female (=1)	681	50.6
Age[a]	20–34 years	239	17.8
	35–49 years	368	27.4
	50–64 years	424	31.5
	65 years and older	314	23.3
Education	Middle school	164	12.2
	High school	610	45.4
	Junior college	245	18.2
	University—undergraduate	292	21.7
	University—graduate, PhD	34	2.5
Houshold income[b]	<1,120,000 Yen	289	21.5
	≥1,120,000 Yen < 2,240,000 Yen	193	14.3
	≥2,240,000 Yen < 3,360,000 Yen	371	27.6
	≥3,360,000 Yen	492	36.6
Labor market participation	Working	938	69.7
	Non-working	407	30.3

[a] Mean age = 51.2 years (min. = 20 years, max. = 93 years)

[b] Self-reported annual household income adjusted for household size

Table 4 Descriptive statistics for social capital

Variable	n	Mean	Std. Dev.	Min	Max
I can trust most people (SC1)	1345	4.31	1.19	1	7
In times of trouble, I can rely on someone (SC2)	1345	4.57	1.24	1	7
If I worry about something, there is someone who helps me (SC3)	1345	4.98	1.15	1	7
I can definitely trust my friend's promise (SC4)	1345	4.79	1.12	1	7

Table 5 Descriptive statistics for social affiliation

Variable	n	Mean	Std. dev.	Min	Max
I am worried that society leaves me behind (SA1)	1345	3.31	1.41	1	7
Society does not care about me (SA2)	1345	3.34	1.35	1	7
I feel like I do not really belong to society (SA3)	1345	3.07	1.34	1	7
I do not see a place in society in which I am being taken seriously (SA4)	1345	3.16	1.34	1	7
I feel that nobody needs me (SA5)	1345	2.92	1.40	1	7
I feel excluded from society (SA6)	1345	2.46	1.23	1	7

Table 6 Descriptive statistics for subjective well-being

Variable	n	Mean	Std.Dev.	Min	Max
Overall, I am satisfied with my life as it is (SWB1)	1345	4.44	1.47	1	7
I lack many things which I would need in order to lead a happy life (SWB2) (coded in reverse)	1345	4.65	1.36	1	7
Compared to others, I lead a happy life (SWB3)	1345	4.68	1.18	1	7

Table 7 Correlations between the control variables included in the SEM

Variable	Gender	Household income	Age	Labor market participation
Household income	−.08**			
Age	−.06*	−.04		
Labor market participation	−.17***	.14***	−.36***	
Education	−.16***	.32***	−.32***	.16***

* $P < .05$; ** $P < .01$; *** $P < .001$

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