Demographic and socioeconomic determinants of living alone in Sweden and Japan

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Abstract

The main goal of this paper is to evaluate the demographic and socioeconomic characteristics of one-person households (OPHs) in Sweden and Japan in 2016 empirically, societies situated similar in terms of economic development but representing very different cultural and institutional context and being at different stages in the trend over time towards a higher share of the population living alone. Significant differences in living alone in both countries can be observed, with nearly two times higher proportion of individuals living alone in Sweden than in Japan (22% vs.12%, respectively) although it is clear that the share of OPHs is growing in Japan while the growth in Sweden appears to have subsided in the recent decades. The largest differences in levels of OPHs between the countries are found in the retirement age span, where levels in Sweden are much higher than in Japan. Sweden being a forerunner in the growth of OPHs is regarded as a staunchly individualistic society with a weak family system and a high degree of gender role symmetry. Japan is, in many ways, a polar opposite being a strong family society where familial ties still play a much greater role in the economic and social security of the individual. The much lower growth in OPHs with increasing age in Japan is what we expect given the much higher share of elderly living with adult children at advanced ages in more feministic countries such as Japan compared to Sweden. The analysis also shows that the effect of education is different in the countries with an apparent negative effect of education on living alone in Sweden, while in Japan, we only find a weak negative gradient of being an OPH for men but not for women. Also, living alone in Japan seems to more strongly associate with living in an urban context than in Sweden, where men in urban areas have a lower probability of living alone than men living in rural areas.

Introduction

The role of the family in developed countries has been undergoing radical changes since the 1960s. These changes are often labeled as the Second Demographic Transition. They are characterized by decreased fertility to levels well below replacement, postponement of family formation, increased union instability, and increased share of one-person households (OPHs) in all age-groups (Lesthaeghe, 2010). These changes are moving at a different pace and having different characteristics across the typical forerunner societies in Northern Europe and the US compared to the laggards in Southern Europe and even the most developed nations in East Asia, i.e., Japan.

The forerunners, most typically exemplified by the Scandinavian countries, are described as characterized by the as weak family system (Reher, 1998), being more de-familiarized, post-materialistic, and gender-egalitarian compared to the strong family societies in Asia and Southern Europe (Esping-Andersen, 1999). In those settings, the family typically plays a profound role in the economic and social welfare of individuals. Also, the gender regime there is more asymmetric with higher shares of non-employed women than in the more individualistic cultures in the Nordic countries where women's employment rates are close or at the same level as found among men.

However, those societies with strong familism have ironically experienced dramatic falls in infertility during the Second Demographic Transition and have caught up and surpassed the forerunners that label the lowest-low fertility rates below 1.5 children per woman. Apart from deficient levels of fertility, the sharp rise in the share of individuals living alone as an OPH is another dramatic expression of the changes related to the Second Demographic Transition. In the weak-family societies (i.e., Sweden, Norway, Finland, and Denmark), between 30-40% of households contained only one person at the end of the 2000s (OECD 2013). Although the increase in OPHs that started in the 1960s in these countries appears to be attenuated since the 1990s, it persisted at high speed in societies where the role of the family is much more important, such as Southern-Europe and in particular the

most developed nations in Asia—Japan. With the highest share of OPHs in Asia, Japan experienced rapid OPHs growth from 19.8% in 1980 to 32.4% of all households in 2010 (Yeung & Cheung, 2015).

Until recently, little attention has been given to the determinants of living alone in different contexts in demographic research. Still, there is limited knowledge on how the composition of the population living alone is evolving, given the fact that living alone has grown from a marginal phenomenon to one of the most common living arrangements (especially among the young and elderly segments of the population). While the most systematic work on this issue has focused on Europe and North America, to the best of our knowledge, there is so far no comparative studies on potential differences in the determinants of OPHs between weak-family countries (e.g., Sweden) and culturally very different strong-family societies in Asia (e.g., Japan).

This paper aims to empirically evaluate demographic and socioeconomic characteristics of OPHs in Sweden and Japan, societies situated similar in terms of economic development but representing substantially different cultural and institutional contexts and being at different stages moving towards a higher share of living alone of the population.

Data and methods

The primary source of Swedish data is from Statistics Sweden, which contains yearly information on household composition based on the Swedish dwelling register (Statistics Sweden, 2013), as well as complete fertility histories based on the multi-generation register (Statistics Sweden, 2011) with detailed socioeconomic and demographic information drawn from the integrated database for labour market research (Statistics Sweden, 2016). The dataset of Japan is the Comprehensive Survey of Living Conditions (CSLC), which is a nationally representative repeated cross-sectional survey of the non-institutionalized population conducted once every three years. The CSLC contains four questionnaires focusing on detailed information on the household, health, income, and long-term care. For both countries, we focus on survey /register year 2016 that is the latest available update.

Based on the datasets in Sweden and Japan, we harmonized a set of inter-country comparative indicators of demographic and socioeconomic status: gender, age (five-year band), education (primary, secondary, and university), parental status (childless or not), and type of residence (urban and rural). We extract individuals aged 30 years and above from the datasets of both countries. The sample for estimations is consist of 6,249,336 and 424,347 individuals in Sweden and Japan, respectively. We use logistic regressions to estimate how the demographic and socioeconomic characteristics influence the probability of living alone in the two countries, separately for men and women. We present the results as predicted probabilities in the form of average marginal effects of the theoretically relevant variables based on the full models (Williams, Richard, 2012).

Results

Descriptive Statistics

Table 1 presents the basic statistics of the study population. The Swedish sample is evenly divided by gender, and the Japanese sample is slightly overrepresented among women. Regarding the distribution of age, the Swedish sample reports higher proportions of young generations than does the Japanese sample. For instance, 9.89% of the individuals in the Swedish sample are adults aged from 30 to 34 years, about 2.5 percentage points higher than the proportion in Japan. There is also an inter-country gap regarding the share of being childless. 24.03% of the individuals in Japan are childless, much larger compared to 18.37% in Sweden. On the other hand, individuals in both countries report a similar level of educational attainment. More than 80% of the individuals attain secondary education or above, with about 30% educated at the university level.

[Table 1]

Table 2 further reports the proportion of living alone for the full sample as well as for each of the subgroups of Table 1, respectively, in Sweden and Japan. Overall, there is a substantial inter-country gap in the proportion of living alone, with nearly

two times higher proportion in Sweden than in Japan (21.99% vs. 11.81%, respectively). The gap is consistently observed regardless of age, parental status, level of education, and type of residence.

[Table 2]

Table 3 further stratifies the statistics of Table 2 by gender. In both countries, men report the higher probability of living as an OPH than women at earlier life stages (20.30% vs. 11.90% in Sweden and 8.64% vs. 5.18% in Japan, for men and women aged 30-34 years). The gap diminishes with age, and inversely, women become more like to live as an OPH than men at later life stages.

[Table 3]

Main Results

Table 4 reports the odds ratios of living alone after controlling for the confounders using logistic regression, respectively, for men and women in Sweden and Japan.

[Table 4]

We visualize the main results with the following figures. Figures 1 shows the predicted probability of living as an OPH by gender and age. There is a positive association between age and living alone in both countries for both men and women but with a higher speed of increase with age in Sweden than in Japan. The main reason for this is the much higher rates of intergenerational co-residence among elderly Japanese than among Swedish elderly who tend to choose to live independently from adult children. Furthermore, same to the statistics in Table 3, in both countries, men report higher rates than women at earlier life stages. Women quickly catch up with men as going older and become much more likely to live alone at older stages. The age of crossing over, interestingly, varies across countries. In Sweden, women come from behind at 60-64 years; women in Japan do so at around 65-69 years. It possibly reflects the different ages of retirement in the two countries, which in turn indicates that retirement could be an important life event that associates with becoming an OPH.

[Figure 1]

Figure 2 further stratifies the findings of Figure 1 by the level of education. Still, there are notable variations by country. In Japan, there is little impact of education on the probability of being an OPH among women, regardless of age. The gradient is negative in Sweden for both men and women, with the lowest rates of living alone among highly educated (university and above) over the entire life span. Moreover, the gradient is evident for those highly educated while it is indifferent between the other two lower categories (primary and less and secondary). The tendency for lower educated to be more prone to live alone is, however, a relatively recent trend in Sweden, with the opposite association up until the late 1990s (Lundgren, 1989). In Japan, we do find higher probability among low educated men to be an OPH, while unlike in Sweden, there is little difference in the probability of living alone between secondary and university-educated men. Rather, only those with education attainment of primary and less report higher rates of living alone.

[Figure 2]

Furthermore, the effect of education on the probability of living alone is driven by a difference in the association with parental status in Sweden and Japan. This association is discerned in Figure 3, where we separate parents and childless individuals with different levels of education.

[Figure 3]

In Sweden, the lower probability of living alone of the more highly educated is primarily found among parents, as seen in the strong negative interaction effect between education and parental status for both men and women in the regression estimates in Table 4. Childless men and women in Sweden, on the other hand, show opposite associations with education. Specifically, being an OPH is with a positive gradient of education for childless women and weakly negative for childless men. In Japan, the picture is quite different, with no association with education among parents but a substantial adverse effect of education among the childless. In particular, childless and low-educated men in Japan report the highest rate of living

alone. At this early stage of our analysis, we are unsure about how to interpret this negative effect of education on the probability to live alone among childless Japanese men and what potential causal effects that are producing this association in Japan. However, this finding is interesting from a policy perspective, given the potential vulnerability of individuals lacking access to direct family support in a familistic society like Japan, where the role of the family in economic and social support is greater than in an individualized welfare state regime such as the one found in Sweden. Low-educated childless Japanese men are potentially the most vulnerable group that has both low socioeconomic resources and a lack of family support.

Discussion

Distinguishing between different groups of individuals living alone in adult age is essential from a policy perspective since these groups of men and women will have different social and financial resources as they enter later life. While the trend of solitary living has stabilized in Sweden, it is predicted to grow in Japan continuously. In addition, the overall effect of education among childless individuals is also much more pronounced in Japan than in Sweden. Our results indicate that low-educated childless men in Japan are the most likely to be an OPH. Given the welfare regime and culture in Japan, individuals rely heavily on intergenerational co-residence and kinship ties to access social and economic support. Therefore, the pattern of a concentration of solo living to low educated childless men in Japan makes them a potentially vulnerable and disadvantaged group. To the extent that the growth in OPHs continues in Japan and this association between education, childlessness, and living alone remains unchanged, the growth in OPHs will likely contribute to a higher number of vulnerable individuals in Japan, especially among low-educated men.

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Figures

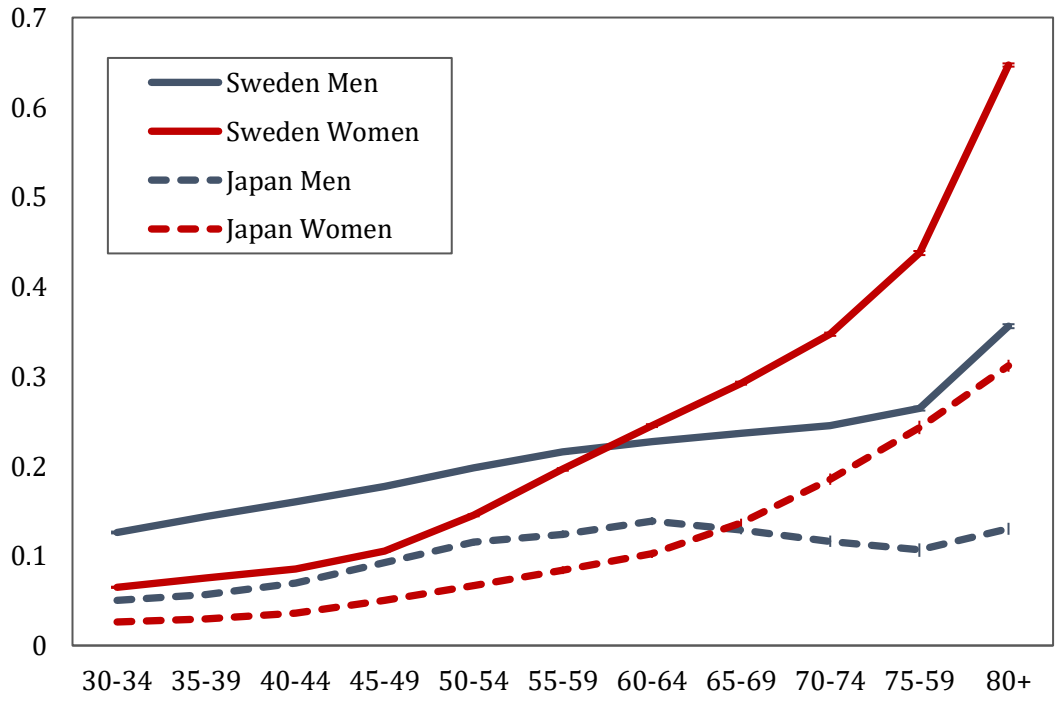
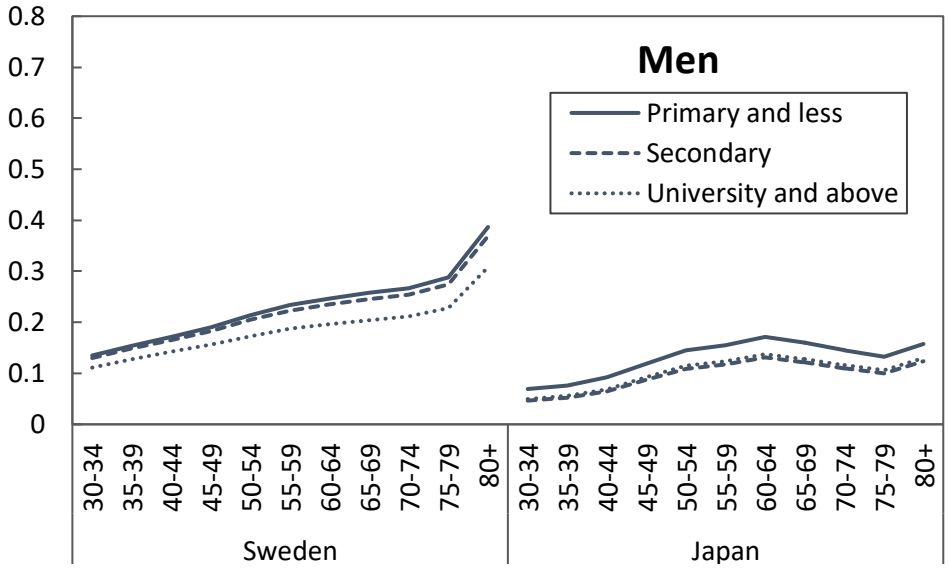


Figure 1: Probability to be an OPH by age and gender in Sweden and Japan 2016



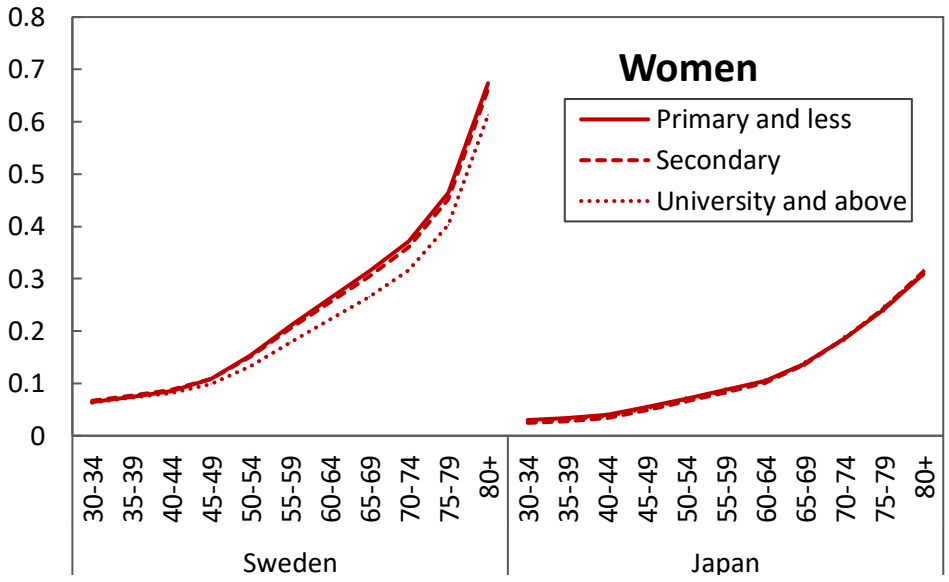


Figure 2: Probability to be an OPH by age and education in Sweden and Japan 2016

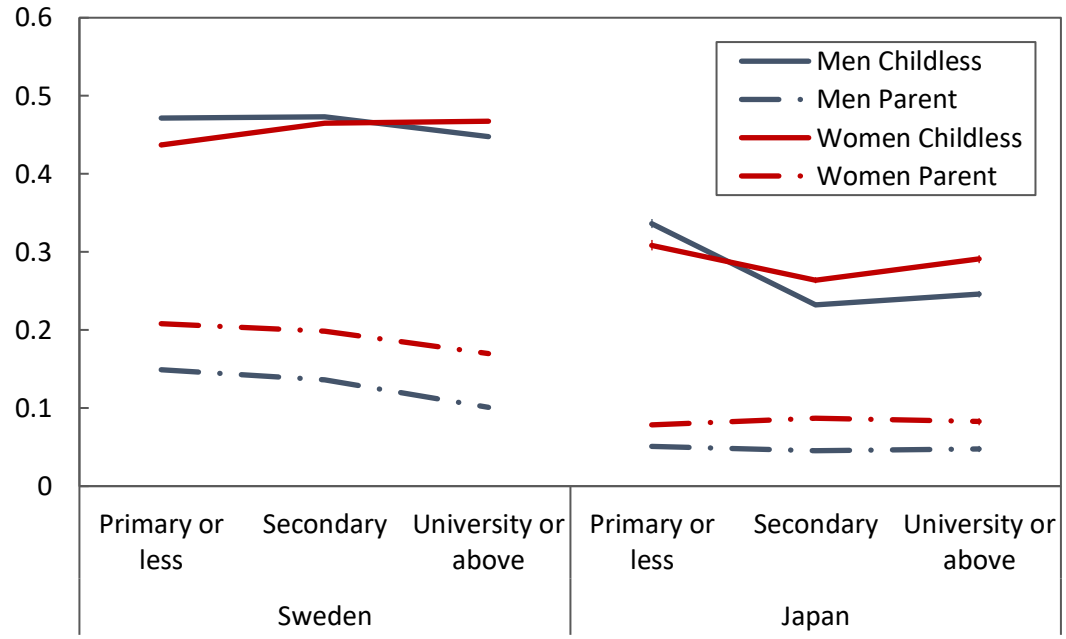


Figure 3: Probability to be an OPH by education and parental status in Sweden and Japan 2016

Tables

Table 1: Descriptive statistics of the study population

	Sweden (N=6,249,336)	Japan (N=424,347)
Sex		
Male	49.24%	47.09%
Female	50.76%	52.91%
5 year age-group		
30-34	9.89%	6.46%
35-39	9.60%	7.87%
40-44	10.18%	9.65%
45-49	10.42%	9.14%
50-54	10.57%	8.50%
55-59	9.23%	8.73%
60-64	8.93%	9.91%
65-69	9.09%	12.28%
70-74	8.53%	8.58%
75-79	5.61%	7.48%
80+	7.94%	11.38%
Parental status		
Childless	18.37%	24.03%
Parent	81.63%	75.97%
Level of education		
Primary or less	19.44%	17.05%
Lower or upper secondary	48.74%	54.98%
University and above	31.82%	27.97%
Municipality type		
Rural	33.69%	24.78%
Urban	66.31%	75.22%

Table 2: Descriptive statistics for individuals aged 30 and older living alone in Sweden and Japan 2016

	Sweden		Japan	
	N	**% Alone**	**N**	**% Alone**
Total	6,249,336	21.99	425,019	11.81
Sex				
Male	3,077,192	20.50	200,134	10.92
Female	3,172,144	23.40	224,885	12.60
5 year age-group				
30-34	618,339	16.20	27,416	6.88
35-39	599,877	12.60	33,410	5.70
40-44	636,024	12.00	40,954	6.24
45-49	651,014	13.50	38,789	7.71
50-54	660,537	16.60	36,077	9.20
55-59	576,634	20.10	37,050	9.91
60-64	558,292	22.90	42,050	11.65
65-69	568,198	25.20	52,118	13.28
70-74	533,246	28.30	36,430	15.09
75-79	350,714	34.50	31,749	18.10
80+	496,461	53.40	48,304	22.16
Parental status				
Childless	1,147,941	44.30	96,735	24.12
Parent	5,101,395	17.00	305,376	7.24
Level of education				
Primary or less	1,214,838	31.00	60,801	16.79
Lower or upper secondary	3,045,788	21.50	196,024	10.60
University	1,988,710	17.20	99,711	8.81
Municipality type				
Rural	2,105,358	22.50	105,273	10.85
Urban	4,143,978	21.70	319,746	12.12

Table 3: Descriptive statistics for men and women aged 30 and older living alone in Sweden and Japan 2016

	Sweden				Japan			
	Men		Women		Men		Women	
	N	% Alone	N	% Alone	N	% Alone	N	% Alone
5 year age-group								
30-34	316,467	20.30	301,872	11.90	13,467	8.64	13,949	5.18
35-39	304,525	16.70	295,352	8.50	16,576	7.35	16,834	4.08
40-44	321,822	15.80	314,202	8.00	20,341	8.21	20,613	4.29
45-49	329,175	16.90	321,839	9.90	18,884	10.07	19,905	5.46
50-54	335,191	19.00	325,346	14.20	17,570	11.72	18,507	6.81
55-59	290,147	20.80	286,487	19.40	18,036	11.85	19,014	8.07
60-64	279,015	21.60	279,277	24.10	20,293	13.19	21,757	10.22
65-69	280,340	21.90	287,858	28.50	25,126	12.54	26,992	13.96
70-74	261,462	22.30	271,784	34.10	16,942	11.34	19,488	18.34
75-79	165,179	24.20	185,535	43.70	14,310	10.92	17,439	23.98
80+	193,869	34.30	302,592	65.70	18,262	12.86	30,042	27.82
Parental status								
Childless	687,407	44.60	460,534	43.80	53,749	24.09	42,986	24.16
Parent	2,389,785	13.60	2,711,610	19.90	135,666	5.20	169,710	8.87
Level of education								
Primary or less	627,712	25.30	587,126	37.10	26,342	13.29	34,459	19.46
Lower and upper secondary	1,605,075	20.60	1,440,713	22.60	88,851	9.81	107,173	11.26
University	844,405	16.90	1,144,305	17.40	53,136	9.52	46,575	8.01
Municipality type								
Rural	1,046,759	21.40	1,058,599	23.50	49,681	9.88	55,592	11.72
Urban	2,030,433	20.10	2,113,545	23.30	150,453	11.27	169,293	12.88

Table 4: Odds ratios of living alone estimated from logistic regression in Sweden and Japan

	Sweden		Japan	
	Men	**Women**	**Men**	**Women**
	OR (95 CI)	**OR (95 CI)**	**OR (95 CI)**	**OR (95 CI)**
5 year age-group (ref: 30-34)				
35-39	1.25 (1.23, 1.27)	1.26 (1.23, 1.29)	1.03 (0.94, 1.14)	1.14 (1.01, 1.29)
40-44	1.46 (1.43, 1.49)	1.38 (1.35, 1.42)	1.25 (1.14, 1.38)	1.34 (1.19, 1.51)
45-49	1.52 (1.5, 1.55)	1.36 (1.33, 1.4)	1.63 (1.48, 1.79)	1.55 (1.37, 1.74)
50-54	1.58 (1.55, 1.61)	1.38 (1.35, 1.41)	2.12 (1.92, 2.33)	1.87 (1.65, 2.11)
55-59	1.63 (1.6, 1.66)	1.44 (1.41, 1.48)	2.49 (2.26, 2.75)	2.18 (1.92, 2.47)
60-64	1.64 (1.61, 1.68)	1.57 (1.53, 1.61)	3.2 (2.91, 3.52)	2.29 (2.03, 2.58)
65-69	1.67 (1.64, 1.71)	1.92 (1.87, 1.97)	2.57 (2.34, 2.83)	2.97 (2.66, 3.31)
70-74	1.7 (1.66, 1.74)	2.32 (2.26, 2.39)	1.92 (1.71, 2.15)	3.83 (3.4, 4.31)
75-79	1.73 (1.68, 1.78)	3.07 (2.97, 3.18)	1.36 (1.2, 1.55)	5.54 (4.9, 6.27)
80+	2.21 (2.15, 2.28)	5.84 (5.67, 6.01)	1.43 (1.26, 1.63)	11.32 (10.03, 12.78)
Parental status (ref: Childless)				
Parent	0.12 (0.12, 0.13)	0.05 (0.05, 0.05)	0.04 (0.03, 0.05)	0.01 (0.01, 0.02)
Level of education (ref: Primary or less)				
Lower and upper secondary	1.01 (0.99, 1.02)	1.13 (1.11, 1.15)	0.59 (0.55, 0.63)	0.78 (0.72, 0.84)
University	0.91 (0.9, 0.92)	1.14 (1.12, 1.16)	0.64 (0.59, 0.68)	0.91 (0.83, 0.99)
Parent×5 year age-group (ref: 30-34)				
35-39	0.92 (0.89, 0.94)	0.91 (0.87, 0.95)	1.71 (1.21, 2.43)	0.98 (0.52, 1.84)
40-44	0.92 (0.89, 0.95)	1.16 (1.1, 1.21)	2.11 (1.52, 2.92)	1.93 (1.11, 3.34)
45-49	1.12 (1.08, 1.15)	2.14 (2.05, 2.23)	2.65 (1.93, 3.65)	5.29 (3.15, 8.9)
50-54	1.39 (1.35, 1.43)	4.09 (3.92, 4.26)	2.71 (1.98, 3.72)	7.6 (4.54, 12.71)
55-59	1.63 (1.58, 1.68)	6.6 (6.33, 6.88)	2.28 (1.67, 3.13)	9.65 (5.78, 16.11)
60-64	1.81 (1.75, 1.87)	8.67 (8.31, 9.03)	1.72 (1.26, 2.35)	13.49 (8.11, 22.45)
65-69	1.93 (1.87, 1.99)	9.25 (8.87, 9.64)	2.38 (1.74, 3.24)	15.66 (9.44, 25.96)
70-74	2.04 (1.98, 2.11)	10.04 (9.62, 10.48)	3.6 (2.61, 4.95)	18.94 (11.4, 31.48)
75-79	2.32 (2.23, 2.41)	11.45 (10.93, 12)	5.92 (4.27, 8.2)	18.69 (11.24, 31.09)
80+	3.16 (3.04, 3.27)	14.94 (14.3, 15.6)	8.33 (6.04, 11.49)	11.68 (7.03, 19.39)
Parent×Level of education (ref: Primary or less)				
Lower and upper secondary	0.89 (0.88, 0.91)	0.82 (0.81, 0.84)	1.51 (1.37, 1.66)	1.44 (1.32, 1.58)
University	0.69 (0.68, 0.7)	0.64 (0.62, 0.65)	1.47 (1.32, 1.64)	1.17 (1.04, 1.31)
Municipality type (ref: Rural)				
Urban	0.96 (0.96, 0.97)	1.17 (1.16, 1.17)	1.17 (1.12, 1.22)	1.2 (1.16, 1.24)