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Factors associated with intergenerational social support across the world

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Ageing International

Factors associated with intergenerational social support among older adults across the world

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Dear Editor,

Thank you very much for giving me a chance for second revision of the manuscript. It has been revised as per the comments made by the reviewer #1. Following are my responses to the reviewer:

Comments by the reviewer	Author's Response
The authors have addressed the points raised in the previous submission and I think this paper is now a worthy contribution and deserves to be published.	Thank you very much
The only point is that I think that the authors should say that the biased sampling in favour of "trendsetters" in developed countries compromises understanding of the severity of the ageing problem amongst the majority of the population in these countries - but it does give some insight.	Included in page 7 (end of 1st para in red colour)
I think that the authors have misunderstood one of the comments made - for the logistic regressions I would have liked to have seen pseudo R square values and percentage correctly predicted reported. I am not over concerned about this.	Yes, I do agree. Nothing to be added in response to this query.

I look forward to hearing from you.

Thanks.

Factors Associated with Intergenerational Social Support among Older Adults across the World

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Factors Associated with Intergenerational Social Support among Older Adults across the World

Abstract There has been increasing interest among social scientists with regard to the role of socioeconomic, demographic, and cultural situations on intergenerational finance and help and care transfers in society. With the rapid pace of socioeconomic development and both populations and societies generally being in transition in many parts of the world, traditional values and family dynamics are being affected. Although some researchers have attempted to explore the changing pattern of intergenerational transfers for specific geographical locations, there has been no global comparison yet made due to either an inadequate data set or complete lack of it. Utilising the 2007 Global Ageing Survey (GLAS), this study attempts to examine important determinants of financial transfers as well as help and care transfers among individuals aged between 40 and 79 years residing across 21 countries and territories in five major regions of the world. In the present study, it has been found that a respondent's age, gender, household size, health appraisal, education, employment status, marital status, contact between generations and geographical location are key factors affecting the receipt or provision of financial support as well as help and care support. Analyses have been performed at regional and country levels providing robust and reliable estimates. This enables us to reach more effective conclusions on populations overall as well as on specific geographical settings. Some policy recommendations and future research directions are put forward in the last part of this paper.

Key words Intergenerational contact. financial, help & care transfers. determinants. logistic regression. GLAS survey.

Introduction

The second half of the last century saw an accelerated growth in many developed countries in the numbers of people aged 65 years or more matched by a slow but fairly similar pattern in developing countries. An ageing population is becoming an important global phenomenon and the proportion of elderly people is expected to grow in the future. The family has played an important role throughout human history by providing support and care to its members and older people in turn have received special help and care as an obligatory part of familial and social responsibility. Traditionally, the younger generation has taken care of older people as part of intergenerational solidarity but this pattern is changing quite dramatically. The balance of the young-old support ratio has been declining in every society although it is faster in more developed nations. For example, the support ratios between populations 65+ and 15-64 years for selected counties show that there will be a steady growth in the numbers of elderly people in all countries up to 2050. Also, more elderly care and support will be required in economically advanced countries compared to what was being provided in 2000 (Figure 1). The dynamics of population change has tremendously affected existing policy practice on such things as retirement age, labour force policy, transportation, business and healthcare (see for example, Raeside and Khan 2008; Lloyd-Sherlock, 2010; Fingerman et al., 2010; UNFPA, 2012; McDaniel and Zimmer, 2013). Social

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scientists are very keen to understand the changing patterns of social norms and values and most importantly understand the impact of modernisation on social support for the elderly in society.

Figure 1 about here

Theoretical ideas and linkages

The transfer of resources between generations is of multiple importance to the family as well as to society with perhaps the most important being the economic resource (see for example, Schultz, 1986; Kohli, 1999; Attias-Donfut and Lapierre, 2000; Arrondel and Masson, 2001; Attias-Donfut, 2005; Fingerman et al., 2010; Leeson and Khan, 2013; Arber, 2013). The flow of wealth between younger and older generations has a tremendous impact on socioeconomic development such as children's education and future career development (Attias-Donfut and Wolff, 2000a). According to some economic demographers children are valued in many ways such as demand and utility functions by Schultz (1987, 1997) and Rosenzweig and Schultz (1985) and as risk insurance in old age by Cain (1986, 1990). Schultz's theory reflects the most common nature of a human being but Cain's theory reflects the reality of a preference for male children in many developing countries with the consequence that fertility rates in those countries were observed to be higher for a long time. Indeed, high fertility is sometimes seen as explicitly motivated by a concern for support in old age (Cain, 1986; Data and Nugent, 1984; UNFPA, 2012). Low fertility in most developed countries is well understood to be a result of rapid socioeconomic development and modernisation. Similarly, fertility decline in many parts of developing Asia has been dramatic with the exception of Africa where the fertility rate is still the highest in the world (UNFPA, 2012). Generally speaking, higher fertility is associated with lower socioeconomic status of people and has obviously a positive link with social security in old age (Nugent, 1985; Cain, 1991; Khan and Raeside, 1994, 1997; Boldrin et al., 2005).

Older people prefer to live in their usual home and with other family members (Sokolovsky, 2000; Leeson, 2006; Kofod, 2006). In a study on China, Silverstein et al. (2006) found that older parents living in three generation households or with grandchildren in skipped-generation households had better psychological well-being than those in single-generation households. Receiving greater remittances from adult children increased the well-being of the elderly in China. The migration of younger workers from rural to urban areas has altered the traditional support pattern of rural elders. Moreover, the gradually declining pattern in co-residence rates between older parents and adult children has brought new concerns on social support flow in some Asian countries such as the Philippines, Thailand, Indonesia and Bangladesh (Knodel and Ofstedal, 2002; Schroder-Butterfill, 2003). For centuries, the extended family household has formed the basis for the traditional family support system of the aged in Chinese society. Studies show that older people in rural China tend to live near to adult children in order to receive aid and to make regular contact with them (Chen et al., 2000; Shen et al, 2012). Social support in China, particularly emotional support from relatives, is beneficial for the psychological well-being of older people (Chen and Silverstein, 2000; Merz et al., 2010). The effects of intergenerational transfers whether economic, emotional or instrumental, may be more pronounced for older

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people in rural areas where filial norms are generally stronger and where the family support systems are more institutionalised (Davis-Friedmann, 1991; Merz et al., 2010). Indeed the demographic, social and ideational changes in the recent past have triggered increasing concerns about the ability and willingness of families to support the older generation (Ogawa and Retherford, 1997; Leeson and Khan, 2013).

In developing countries most research has focused on the support provided by children to their elderly parents. One study describes the role of elderly Indonesians in providing materials and practical support to their families (Schroder-Butterfill, 2003). There has been a growing appreciation of the role of elderly people as support providers in their families as well as in their communities (Hermalin et al., 1998). In most developing countries, grandparents in the household are caretakers of grandchildren left behind in rural villages. Grandparents are sometimes valuable resources in families when parents are not able to fulfil their parenting duties (Hermalin et al., 1998; Chen et al., 2000). Elderly people may assist their families in a variety of other ways. In rural Java, the contribution of elderly parents and grandparents is huge. They maintain full parenting responsibilities well into old age; represent the economic backbone of multigenerational families; step in during crises with the younger generation, and supplement meagre household incomes by continuing to work (Schroder-Butterfill, 2003). Grandparenting often represents an extension of a woman's domestic responsibilities. Aboderin (2004) argues that material family support for older people is declining in sub-Saharan Africa as a result of increasing poverty and diminishing economic security in old age. In Ghana, material support for the elderly traditionally comes from the family and adult children have a moral obligation to provide it (Apt, 1996; Gyekye, 1996; Nukunya, 1992). Evidence suggests that family support for the elderly no longer provides the necessary protection and is insufficient to meet even their basic needs (Aboderin, 2001; 2006). In many developing countries, lack of formal support systems and economic resources places older people at a disadvantage and pushes them to exchange negotiations with their family and their community. In the existing demand and supply structure for support services, older people find themselves in a weakened position, particularly when they are ill, disabled or living in extreme poverty (Conceicao and Zavala, 2004).

Past studies have attempted to examine the determinants of intergenerational proximity and contacts between older parents and their children across many European countries (Hoff, 2006; Hank, 2007) and in the United States (see for example, Greenwell and Bengtson, 1997; Lawton et al., 1994). Research in Asia reveals that co-residence with an adult child is indicative of upward flows of social support (Keasberry 2001; Cameron, 2000; Ofstedal et al., 1999; Knodel and Debavalya, 1997). Co-residence with children remains virtually the only source of support for older people needing care. However, Schroder-Butterfill (2003) has shown that living arrangements in Java were found to be an inadequate indicator of support for the elderly.

Filial piety refers to the practice of respecting and caring for one's parents in old age, based on the moral obligation that children owe their parents (Hashimoto and Ikels, 2005; Merz et al., 2010). One of the most commonly traded stereotypes about intergenerational relations in Asia is that adult children feel an obligatory duty to provide old-age support to their parents (Schroder-Butterfill, 2003). Children see sharing responsibilities within the family as an obligation in adulthood and as part of the natural progression of life interdependencies (Harper, 1992). Filial obligation therefore encourages children to respect ageing parents in the society. It is expected that all governments have some responsibility for the health of their populations

including elderly people. Care and social services are not seen to be a policy priority in many countries. Lack of access to primary health care for the elderly is a common picture in developing countries. Older people are usually associated with chronic conditions where the cost of treatment is sometimes impossible for them or their close relatives to bear. In this situation, the traditional household and community structures still play an important role. As mentioned earlier, a great majority of older people in developing countries continue to live with their children or other family members (Sokolovsky, 2000). However, factors like rapid urbanisation and poverty put families under strain particularly in rural areas and reduce their capacity to meet their minimum support needs. Indeed, increasing female participation in the labour market is likely to constrain the supply of informal care regardless of household structures. This creates a new concern among policy-makers. On the other hand, in many developed countries, the state finances full/partial support for elderly care and older people are willing to have informal carers. For example, in Japan most people still rely upon the informal care provided by family, relatives, friends and neighbours because of cultural and historical reasons (Ogawa, 2004). Critics often argue that women have always been the main providers of care. Since women are more likely to survive their male spouses, they are more likely to provide care to their male spouses and in turn receive less. As women are more likely to be widowed this reduces their access to informal care. Despite this, the one thing in common between both developed and developing countries is that women are the predominant carers in all the different caring sectors.

Men and women may suffer from different type of diseases and so different life expectancies. While women live longer than men, they may suffer from ill health for a longer time compared to their male counterparts. For instance, the gap between life expectancy and healthy life expectancy, which measures the number of years of life to be in good health, is larger for women than men (Kalache et al., 2005; Aboderin, 2013). Urbanisation is often a cause behind the split of three generational households and can lead to the need for grandparents to act as carers for their grandchildren left behind by their parents when they move to urban areas in search of employment. On top of this, demographic, socio-economic and cultural shifts associated with urbanisation have changed the dynamics and structure of the family and with increased life expectancy, numerous generations are living together at the same time, creating changes in the kinship structures. It could be argued that today's life expectancy allows for more multi-generational households although this does not necessarily mean that they all live together under the same roof.

Research hypotheses

The bulk of the literature on ageing highlights older people as being physically or economically dependent and that older people will naturally tend to be receivers of financial transfers and provide less care support to others. These receiving and giving behaviours are sometimes found to be stereotypes. This research investigates the relationships between the selected characteristics of respondents and social support. The notions and linkages between variables and intergenerational transfers have long been theoretically established although some of them were not empirically verified because of lack of appropriate data sets for cross-country comparison. Another important issue is that the changing patterns of the economy and the family may have

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influenced people's attitudes towards intergenerational transfers and such supports tend to be different in different cultural contexts. In the light of the above discussion, we have set up the following hypotheses.

Hypothesis 1: Traditionally women provide care for household members. In old age women have relatively more contact with their adult children and they normally receive money to take care of grandchildren. Therefore, one can expect that women receive more financial support from children and relatives. *Hypothesis 2*: Age is strongly linked with intergenerational transfers. It can be expected that the higher the age of respondents the more likely it is that they will receive financial, help and care support on the one hand and are less likely to provide financial, help and care support on the other. *Hypothesis 3*: We hypothesise that the larger the household size the more likelihood of receiving and also providing financial and physical care transfers. *Hypothesis 4*: It is expected that those respondents who are in poor health should receive more financial and physical care and be less likely to provide any such supports. *Hypothesis 5*: Highly educated respondents are expected to provide more financial and physical care. On the other hand, they have less chance of receiving financial or help and care support. *Hypothesis 6*: Those who are unemployed are more likely to receive financial and physical support from friends and relatives and this can only apply to pre-retirement ages. On the other hand, they are less likely to provide financial and physical support compared to those in white-collar occupations. *Hypothesis 7*: It can be expected that respondents who are widowed, separated or divorced are more likely to receive intergenerational transfers than their single counterparts. In contrast, they are less likely to provide any support. *Hypothesis 8*: Respondents have more contact with the different generations in their families and it may be hypothesised that those who have contact with children will receive more financial and physical (material) support than earlier generations. *Hypothesis 9*: Respondents of North America and Europe may expect to receive less financial and physical (material) support than those respondents from other regions (continents). In contrast, they provide more social support.

Generalisability

As a cohort, older people are heterogeneous in many ways and they live in a wide variety of circumstances at different geographical settings. The problems faced by elderly people may not be the same between developed and developing countries. For example, the reasons for making financial transfers differ according to the generosity of welfare structures and the economic performance of each country. There are, of course, many common attributes associated with older people. For instance, later life is associated with dependency, vulnerability, an inherent lack of capability and a poor quality of life (Lloyd-Sherlock, 2004). Poverty is a cause for real concern in old age and elderly people are less likely to be engaged in salaried economic activities. They are more exposed to age-related risks, such as physical decline and some kinds of chronic disease. There is always a fear among older people that the cost of care will go up in later life. The majority of the world's older people do not receive any form of pension and are directly or indirectly dependent on someone in the family or in the local community and this will be the case for the foreseeable future. In many cases those who do receive

pensions may share their income with other family members. It can be expected that intergenerational solidarity will prevail within the families in the some countries and territories despite many societal changes.

It is possible to identify some general differences in formal social protections between high, middle and low-income countries. A developed country is able to spend a larger amount on social protections and a bigger share may go towards the welfare of older people. Such programmes may range from the provision of pensions to healthcare, institutional care and other forms of social services. However, these programmes are expensive and are often viewed as beyond the financial capacity of many developing countries. Given all these different facts and figures between countries the question remains as to how important generalisation is in ageing studies. For obvious reasons when heterogeneity exists between countries and within countries, the national estimates do not reflect the overall situation. This may mask some important sub-national variations. Nevertheless, it is possible to make at least some generalisations on the issue of intergenerational transfers across various regions and countries. When testing for generalisations it is important to check the rigour and reliability of estimates at various levels of the hierarchy. This has been performed in this study in order to reach some conclusions. The hypotheses mentioned above are examined in this paper and will then be used for verifying existing theories and updating knowledge.

Objectives of the study

In the literature children are often regarded as the best investment of resources in an entire life course. The support mechanism between parents and children and the responsibility of support sharing among children seem to be complex and unclear in the literature. It may be partly due to the measurement problem because various authors define transfers differently (Attias-Donfut and Wolff, 2000b; Attias-Donfut, 2005; Fingerman et al., 2010). One thing is clear, whatever definitions and measurements of transfers have been used earlier, that the flow of transfers (in this paper to mean measured by either the receiving or giving of resources) largely depends on the socioeconomic, demographic and cultural context of the individual. Relatively little research has addressed the factors affecting intergenerational transfers and to compare them in terms of global perspectives. For many years social scientific researchers, interested in family dynamics, have been eagerly waiting to know the determinants of intergenerational transfers across various geographical locations. Current data allows us to undergo such research and this study aims to examine important determinants of financial, as well as help and care transfers, among people aged 40-79 years.

This paper is organised into several sections. Following the introduction, the sources of information and analytical tools utilised for the study are discussed. Then comes a brief discussion on variable selection with measurements and characteristics of respondents featuring in the results section. Following on from this, some exploratory analysis and advanced statistical models are put forward to examine the effects of covariates under study. The paper ends with a discussion of the main results and a constructive guideline of the implications for policy making.

Methodology

Sample

The present study uses data collected in the 2007 Global Ageing Survey (GLAS) in which information was collected from 21,233 individuals aged 40-79 years across 21 countries and territories in five major geographical regions of the world. The study population comprised 9,843 men and 11,390 women in four age cohorts: two pre-retirement aged 40-49 and 50-59 years, and two post-retirement aged 60–69 and 70–79 years. GLAS is the largest global ageing survey of its kind that investigates attitudes towards later life, ageing and retirement. Each individual was asked a number of structured questions regarding their socio-economic status, health conditions, social networks, savings and investments, and preparedness for retirement. The survey covers Denmark, France, Germany, Poland, Sweden, UK, Canada, USA, Brazil, Mexico, Russia, Turkey, Saudi Arabia, South Africa, China, Hong Kong, Taiwan, India, Indonesia, Japan, Malaysia, Philippines, Singapore, and South Korea, which can further be broadly classified into two mutually exclusive groups of mature and transitional economies respectively. Mature economies are those that industrialised early, have large service sectors, affluent populations, long-established pensions infrastructures and legislation and provide a comprehensive welfare 'safety net' for their citizens. On the other hand, transitional economies do not yet meet the definition of a mature economy. In the transitional economies, the survey interviewed so-called 'trendsetters' - people who live mainly in urban settings, and who work in the service sector or other modern areas of the economy. These trendsetters will arguably pick up on the behaviours and attitudes of mature economy populations at an earlier stage than rural populations in the transitional economies. The biased sampling in favour of "trendsetters" in developed countries compromises understanding of the severity of the ageing problem amongst the majority of the population in these countries - but it does give some insight.

The interviews were conducted by telephone, where this was impractical, or by face-to-face. Individuals were selected at random and samples are representative of the cohort (with due note of the trendsetter phenomenon). Individuals were also drawn from various social classes with proportional representation of age and sex. The questionnaires contained a wide range of questions about respondents' socio-demographics and other attitudes, policies and practices towards older people. Individuals were asked structured questions regarding their attitudes and perceptions with regard to employment and retirement. The Oxford Institute of Population Ageing at the University of Oxford is responsible for the research design and tools. Fieldwork and data-entry were carried out by Harris Interactive. Details of survey methodology and research reports can be obtained on the website http://www.hsbc.com/hsbc/retirement_future/research-summary (HSBC, 2007, 2008).

Variables and their Measurements

From an extensive literature review and on the basis of availability of information in the GLAS survey we selected nine independent variables. These are respondent's age, gender, living arrangement (household size),

self reported health, education, employment status, marital status, contact with generation and geographical region. This study will examine effects of these variables on financial transfers as well as on care transfers. Four dependent variables are used for determining the social support transfers. These are mainly derived from the following questions:

i)   Have you received financial support from a friend or relative during the last six months?
ii) Have you provided financial support to a friend or relative during the last six months?
iii) Have you received practical help in the home (eg cleaning, shopping, cooking) or personal care (eg nursing, bathing, dressing) from a friend or relative during the last six months?
iv) Have you provided practical help in the home (eg cleaning, shopping, cooking) or personal care (eg nursing, bathing, dressing) to a friend or relative during the last six months?

In the survey respondents were asked separate questions on both receiving and providing practical help as well as on personal care. We merge them together to study the total transfer of help and care support for both receiving/providing. Based on these dependent variables four models are constructed to elucidate the key determinants at global, regional and country levels. The definition, measurement and classification of variables are illustrated in Table 1.

Statistical tools

Exploratory data analysis was carried out to understand the selected characteristics of respondents. This was done by performing frequency analysis of variables for their selected subgroups. To test the existence of any significant difference among these subgroups we then performed a chi-square test. Correlation analysis was performed to examine the strength of the relationships between variables and the logistic regression method was applied to fit appropriate models to examine factors affecting financial as well as help and care transfers.

Logistic regression

Logistic regression is a statistical regression model often used in the medical and social sciences when the dependent variable is a dichotomy and the independents are of any type. It is a generalised linear model that provides important information about the relationship between response variables and covariate control variables.

The general form of a logistic regression is:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + ... + \beta_k X_k$$

Where p = Prob (Y=1) is the probability of transferring any form of support, β_0 is the intercept parameter, β_i is the regression coefficients of the ith variable in the model. They are the maximum likelihood estimates after transforming the dependent into a logit variable (the natural log of the odds of the dependent occurring or not) and can be tested by the Wald statistic which follows χ^2 distribution with 1 degree of freedom. It permits one to test the null hypothesis in the logistic regression that a particular coefficient is zero. The main interpretation of logistic regression results is to find the significant predictors of dependent variables. The odds ratios (OR) are computed by $\exp(\hat{\beta})$ which explains the effect of a particular variable as compared to its corresponding reference group. It is commonly used to explain the contribution of covariates. The overall fitness of the logistic regression model was assessed by examining the distribution of log-likelihood ratio (-2logL) and χ^2 test of significance. A detailed discussion on logistic regression and its application can be found elsewhere (see for example, Khan and Raeside, 1997; Hosmer and Lemeshow, 2000; Agresti, 2002).

Results and Discussion

Characteristics of respondents

The characteristics of respondents and their percentage distribution are displayed in Table 1. In the survey respondents are equally drawn from all four age cohorts (40-49, 50-59, 60-69 and 70-79 years) with the overall female proportion slightly over their male counterparts. A vast majority of the respondents lived with two or more co- residents, about 29 per cent lived within a household of two people and only 12 per cent of respondents lived alone. Respondents were asked about their physical condition and response was measured by self reported health. It can be seen from Table 1 that about 37 per cent possess good health followed by 30 per cent fair. Only 10 per cent reported that they have had poor or very poor health. Nearly one-third of respondents had tertiary or a higher level of education with about 37 per cent engaged in blue collar jobs followed by 19 per cent unemployed. A vast majority of respondents (71 per cent) were married or were in a long-term relationship with a partner with 23 per cent widowed/divorced/separated. Only a small percentage (5.4 per cent) of respondents was found to be single. An overwhelming majority of the respondents (94.2 per cent) had contact with their children during the previous six months. Respondents were drawn from five major geographical regions with the highest proportion from Asia (42.5 per cent), then from Europe (24 per cent), Middle East and Africa (14.3 per cent), North America (9.8 per cent) and Latin America (9.4 per cent).

Our global data analysis shows that almost 21 per cent of respondents had received financial support whereas 27.3 per cent received help and care support from their friends and relatives. Relatively more people were found to be engaged in providing support rather than receiving support. Almost 37 per cent of respondents provided financial support whereas 34 per cent provided help and care support. It is expected that

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there is a close link between receiving financial and care support on the one hand and providing financial and care support on the other.

Table 1 about here

Bivariate Analysis

To examine the existence of any significant differences between subgroups of variables, the Chi-square tests have been performed for both transfer received and transfer provided and the results are displayed in Table 2. The strength of relationships between the selected variables is measured and is presented in the form of a correlation matrix in Table 3. It has been found that there exists a significant gender difference with regard to receiving as well as providing transfers. Females received more financial support than males (23.1 per cent vs 17.8 per cent) and also provided more help and care support than male counterparts (37.3 per cent vs 30.6 per cent). By contrast, males were found to be receiving more help and care support and providing more financial support. These results are also verified by the correlation coefficients. The gender difference may well be understood when controlling for other characteristics of respondents. This will be clear when performing multivariate analysis in the following section of the paper. Age is found to be a significant factor in receiving as well as in providing any transfers. As mentioned previously four age cohorts of respondents 40-49, 50-59, 60-69 and 70-79 years are considered in the present study. It can be seen from Table 2 that there is a strongly significant difference (p<0.001) among these age cohorts in term of receiving and giving financial as well as help and care transfers. Comparing results between Table 2 and Table 3 one can conclude that receiving any form of transfers is positively correlated with age while, as expected, providing any form of help and care support is negatively correlated with age. This finding elucidates significant variation between cohorts but does not indicate the existence of any significant variation within each cohort. This is explored through multivariate analysis in a later section of the paper. Both given and received transfers are positively associated with household size which indicates that the higher the household size the more likelihood of transferring support.

Respondent's health appraisal has been classified into four mutually exclusive groups - very good, good, fair and poor or very poor. Health appraisal is found to be statistically significant in Tables 2 and 3. There is increasing evidence of a link between receiving financial (r = 0.150) and physical support (r = 0.165) and the deterioration of self-reported health situations whereas a declining trend of providing both financial (r = -0.034) and physical support (r = -0.082) is reported by those who possess relatively poor health. This analysis gives us a clear indication about the causality between variables but it would be interesting to explore the net effect of health after controlling other important variables. Education appears to be an important factor in intergenerational transfer. It has a strong positive correlation with providing any support and a negative correlation with receiving both financial and physical support. It can be seen from Table 2 that about 24 per cent of respondents who possess primary or less education have received financial support as compared with 21.9 per cent and 15 per cent of respondents who possess secondary, tertiary or higher levels of education respectively. There is a statistically significant difference with regard to social support among these educational subgroups (p<0.001).

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Table 2 about here

In Table 2, our bivariate analysis shows that occupation plays an important role in explaining social support transfers (p<0.001). Those who are doing less important jobs or are unemployed have a greater chance of receiving financial support (r = 0.164) and physical support (r = 0.071). A reverse result is found in the case of respondents who provide support. Marital status is an important variable in demographic research. As stated earlier the highest proportion of people are married followed by a sizeable proportion of those widowed or divorced. As the marriage classification does not follow any order it is wise not to draw any conclusions from the results of correlation analysis. However, it would be worth considering results from cross-tabulations (see Table 2) which reveals that there is a significant difference among three selected groups: single, married/long term partner and widowed/divorced/separated. It has been found that the highest proportion of individuals who are widowed/divorced/separated are more likely to receive financial and physical transfers compared to those who are married/long-term partners and singles. On the other hand, married/long term partners are found to have given more support transfers than others.

Communication between generations is an important issue particularly for older people. The present analysis shows that unlike Europe and North America, respondents from other regions have more contact with their children and the correlation coefficient is estimated to be 0.030 (Table 3). This stereotype finding will further be explored in multivariate analysis. From Table 3 it can also be observed that any form of social support is positively associated with children having had generational contact. This can be explained by the fact that the children's generation are likely to receive both financial and physical support and be partly involved in providing financial support to their parents. It may however be noted that an insignificant association exists between children's generational contact and providing physical support.

It may be expected that social support may vary by geographical location and it has been found that there is a significant regional difference (Table 2). Respondents in Asia receive the highest proportion of financial support (29.5 per cent) and on the other hand, North American received the lowest (5.4 per cent). North American respondents, however, provide the highest financial transfer support (42.9 per cent). Two regional category is used for correlation analysis: i) western region (North America and Europe), and ii) other region (Asia, Latin America and Middle East/Africa). Correlation analysis also provides a consistent finding. It has been found that respondents residing in the western regions are less likely to receive financial support and more likely to provide support as compare to other counterparts (Table 3). The net effect of region after controlling for other factors will be explored in the multivariate analysis and it would be fairly easy to understand the direction and significance of the effects.

Table 3 about here

Multivariate logistic regression analyses

Determinants of social support: a global perspective

A logistic regression approach was used for determining key factors contributing to either receiving or providing intergenerational transfers. In this paper four statistical models were constructed for determining financial support received and provided and also for help and care received and provided. The results from aggregate data analysis are presented in Table 4. It has been found that gender has a significant impact on receiving financial support and implies that there is a higher likelihood of females receiving it than their male counterparts. On the other hand, our analysis shows that females are less likely to provide financial transfers. This reflects the overall scenario of the low socio-economic status of women in society as compared with men. For example, in India women's participation in the labour force has fallen since 1989 with the principal job of many women being domestic tasks and they usually identify themselves as housewives (Olsen and Mehta, 2006). Women are less likely to receive (OR = 0.880) and more likely to provide (OR = 1.302) help and care support as compared to men.

Age is found to have significant positive effect that indicates that the higher a person's age the higher the likelihood of them receiving financial support from friends and relatives. As can be seen from Table 4, those aged 70-79 years are 1.332 times more likely to receive financial support than those who are aged 40-49 years. The reverse result is seen in the case of providing support that indicates there is a gradual decline in providing financial support with an increase in age. Results show that the oldest cohort of 70-79 years is 0.666 times less likely to provide support as compared to the youngest cohort of 40-49 years. They seem to be in expected directions and thus confirm the existing literature. While modelling the help and care transfer we see that there is a higher chance of receiving such support with the increase in age and conversely a lower likelihood to provide any help and care support. What it indicates is similar to our earlier findings as one would have expected.

Living arrangements or household size is found to be statistically significant in the case of receiving financial transfer when other factors are controlled. It means that the higher the household member is in the family hierarchy the more likely they are to receive financial support from friends and relatives. Living with two or more family members is associated with a 1.759 times higher probability of receiving financial support than those respondents who live alone in their household. The net effect of various classifications of living arrangements seems to be in an expected direction but none of the sub-category was found to be significant in the case of providing financial support. The care model shows that there is a higher propensity for those living in larger households to receive help and care. For example, those who live with three or more co-residents are found to have a 2.029 times higher chance of receiving help and care than those who live alone. Similar findings also appear to be the case for providing help and care support.

Respondents' health conditions or health appraisals were found to be significant in both receiving and providing financial support. Those who have had poor or very poor health were found to have a higher probability of receiving financial support. For example, the odds for poor health are 2.46 times higher than

those who possess very good health. In contrast, no systematic trend was observed in the case of providing financial support. Our analysis shows that those who are in good and fair health are found to have a 1.145 and 1.162 times, respectively, higher probability of giving financial support as compared to those who possess very good health. This may be examined further. Looking at the help and care models one can conclude that either receiving or providing help and care support primarily depends on the health condition of respondents. The odds of receiving help and care for respondents with good health compared to very good health was 1.318 times i.e., about 32 per cent higher. Similarly the odds were found to be 1.637 and 2.903 times for respondents with fair and poor or very poor health conditions. The results indicate that the propensity of receiving support instantaneously increases with the deterioration of an individual's health. On the other hand, they are found to be negatively associated with providing help and care support to friends and relatives. These findings support our existing knowledge and are what one would usually expect.

The relationship between education and financial transfer is complex. This study shows that secondary education has a significant positive effect but no significant influence was observed for tertiary and higher levels of education. On the other hand, education is positively associated with providing intergenerational transfer i.e., the higher the education the more likelihood of providing support to friend and relatives. It can be seen from Table 4 that the corresponding odds ratios for secondary as well as tertiary levels of educations were 1.378 and 1.730 respectively while controlling for other factors. It seems very interesting and displays a positive attitude that more and more educated people globally are coming forward to provide help and care support to their friends and relatives. While examining the effect of education on intergenerational help and care support, we see that those who have secondary and higher education are found to have associated with receiving as well as providing more support than those of less educated respondents. This may be partly explained by the fact that educated people have better socioeconomic status and so can provide support to others.

It has been found that occupation is an important variable in receiving financial support. Those who are engaged in blue-collar jobs were more likely to receive financial support compared to those doing white-collar jobs. Respondents who were engaged in other kinds of jobs or were unemployed had a 1.502 times and a 1.533 times higher chance respectively of receiving financial support compared with those doing white-collar jobs. Interestingly, respondents who were in blue-collar or were unemployed were found to be statistically significant and so less likely to provide financial support. Our analysis shows that blue-collar employment has significant negative effects in either receiving (24 per cent lower) or providing (26 per cent lower) help and care transfers compared with white-collar employment. There was also less likelihood of the unemployed respondents in the study receiving help and care support than their white-collar counterparts.

Marital status has a significant impact on financial transfers while controlling for other important characteristics. Respondents who were widowed, divorced and separated were found to have higher chances (1.384 times) of receiving financial support than those of single people (Table 4). The effect of married and long-term partners may be viewed as an unexpected. For example, those who were married or maintained long-term partnerships were less likely (about 22 per cent) to receive financial help than single people. Although it is hard to justify this opposite direction it needs to be further examined. As expected, being married and having a

long-term partner was found to be significant in the case of providing financial support (a 1.246 times higher chance than that of who were single). Looking at the analysis of help and care support globally, we see that the effects of being married or having a long-term partner become insignificant. However, being widowed/divorced/separated have significant effects on receiving help and care transfers where the odds ratio of 1.760 indicates that they have about a 76 per cent greater chance of receiving help and care support than those are single.

It is expected that intergenerational financial transfer will be continued in society although the transition of support varies across place and timing. With the pace of rapid fertility decline on the one hand and recent technological advancement and rapid urbanisation on the other, new generations at present tend to have been more involved in financial transfers compared to their past generations. Evidence from our global survey suggests that younger generations receive more financial as well as help and care support than the older generation. However, the children's generation is more likely to be involved with providing financial support i.e., about 1.480 times more, than their parent's generation.

There has been a regional effect on receiving financial support. Our analysis shows that respondents from Asia have the highest probability of receiving financial transfers. For example, while controlling for other factors Asia was found to have a 6.007 times higher likelihood of receiving financial support compared to America, followed by 4.228 times higher than the Middle East/Africa and 2.882 times higher than Latin America. These results seem to be consistent with theoretical ideas and hereby confirm our existing knowledge.

Table 4 about here

The aggregate level data analysis claims that there is a regional variation among the five selected regions and that the determinants may have different patterns in various regions. Therefore, a regional analysis is essential to examine the determinants and differentials in social supports at regional level. This is performed in the following section.

Regional Level Analysis

In this section an analysis has been carried out individually for each region in order to examine and compare the important predictors across the five regions under study. The risk factors on support received and provided for financial, help and care are presented in Tables 5 and 6 respectively. In our earlier investigation gender was found to be an important factor explaining intergenerational transfer. In all the five regions, females received more financial support compared to their male counterparts and all relevant parameter estimates were found to be statistically significant. On the other hand, no consistent evidence was found for females on the issue of receiving help and care support. For example, gender was found to be an important determinant in Europe, Latin America and Asia. Women receive more help and care support in Europe and Latin America than they do in Asia partly reflecting the socioeconomic status and cultural situation of women in Asia. While looking at Table 6 we see that, except for Asia, women's roles in providing financial transfers are insignificant. In Asia the odds ratio of 0.892 indicates that females are almost 11 per cent less likely to transmit financial support

compared with males. Interestingly, a general consensus among all regions is that females provide a larger proportion of help and care support than their male counterparts. This study reflects some of the inherent social issues of gender equity around socioeconomic and cultural status and mostly around economic power.

While examining the effect of age on support received we found that there is no significant difference in receiving support between the age cohorts 40-49 and 50-59 years in all five regions. This may be attributable to the fact that both are more or less homogeneous pre-retirement groups and thus less likely to require this kind of support. A lower propensity of receiving financial support is associated with cohorts aged 60 years or more in Europe and North America. It is the complete opposite in the case of Latin America, Asia and the Middle East/Africa. This indicates that traditional support systems are still practised in these regions but receiving help and care in old age from friends and relatives were found to be insignificant in North America, Europe and Latin America. They were found to be statistically significant in Asia as well as in the Middle East/Africa. What they indicate is that the propensity of receiving social support increases with the increase in age. For example, those aged 70-79 years were found to have received help and care support 1.355 times and 2.552 times more than those aged 40-49 years in Asia and in the Middle East/Africa respectively. While looking at support provided models in Table 6 we see that age has a significant influence in all regions. Similar findings may be supported by common socio-economic, demographic and cultural contexts between these regions.

Living arrangements were found to be an important variable in Europe, Asia and the Middle East/Africa. Receiving financial and help and care support was higher for those respondents living with three or more household members. Household size seemed to be a relatively dominant factor in Asia. This will be further explored in the country level analysis. While investigating models of support given, respondents in the Middle East/Africa living in large households were found to have a greater chance of providing financial support. In every region a larger household has the propensity to provide more help and care compared to respondents who live alone.

Health is one of the key determinants of intergenerational transfers and there is a regional variation in health perceptions. In general, respondents who possess poor and very poor health are likely to receive more financial support as compared to those who possess very good health. A similar likely trend is found in cases of receiving help and care support. While modelling the support provided, the poor and very poor situations have a negative effect in North America i.e., about 44 per cent lower than those who possess very good health. It is found to be important in both Asia and the Middle East/Africa although it does not follow any systematic pattern for Asia. This study shows that the poorer the health situation the lower is the likelihood of social support. For example, respondents with good, fair and poor health were found to have a 0.654, 0.420 and 0.301 times lower chance of providing help and care respectively.

Education has significant influence on receiving intergenerational transfers in North America and Europe and also partly in the Middle East/Africa. The result shows that the higher the education level then the more likely will financial transfers be received in North America and Europe. However, it has an opposite direction in the Middle East/Africa (OR = 0.583). Providing help and care support is seen to be significant in Europe which indicates that higher educated people have a greater chance to provide more help and care. Higher education is also associated with a greater chance of providing financial support in all five selected

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regions, but secondary education has had a positive influence on help and care support in North America and in the Middle East/Africa.

Occupation is found to be an important determinant in Europe, Asia and the Middle East/Africa (Table 5). Those employed in the less important job sector were found to have received more financial support as well as help and care support than those in white-collar jobs. Apart from a few exceptions people employed in the less important job sectors are generally less likely to provide financial and help care support than their white collar counterparts.

Marital status plays an important role in explaining social support. Widowed/divorced/separated respondents in Europe and Latin America have a greater chance of receiving financial and help and care support than single people. In the Middle East/Africa it has a negative influence (OR = 0.560) while those who are married/long term partners were found to provide financial support.

Intergenerational contact shows that those who have contact with the children's generation received less financial support in Europe and the Middle East/Africa, whereas the reverse was found in the case of Asia. The odds ratio 2.066 for Asia indicates that those who have contact with the children's generation had a 2.066 times higher likelihood of receiving financial support than those who have contact with the parent's generation. Similarly, there is a 49 per cent higher chance of receiving help and care support in Asia. When looking at the influence of generation contact on support provided we see that with few exceptions, the children's generation provide financial and help and care support in Asia, North America and partly in Europe.

Cross-country Analysis

This study also attempts to isolate important variables related to support received as well as provided at country level that will allow us to assess key determinants of social support and to draw precise policy implications at approval levels. The logistic regression results found to be significant for social support are displayed in Tables 7 and 8.

Gender seems to be an important variable contributing to social support in a wide variety of settings. Females are associated with a higher likelihood of receiving financial support in the USA, UK, Russia, Brazil, Mexico, Korea, Malaysia, the Philippines and South Africa. While in the UK, Russia, Mexico, Hong Kong, India, Korea, Malaysia, Taiwan, Turkey and Saudi Arabia females are receiving more help and care support. The analysis of financial support provided in Table 8 reveals that females are relatively less engaged in providing financial support across the selected counties. It is found to have a significant positive effect in France and the Philippines with a significant negative effect in Malaysia (OR = 0.491). Conversely, a consistent result is found on the female role in providing help and care among selected countries. It indicates that women are associated with a higher risk of providing help and care in most countries compared with their male counterparts. This is found to be highest in Saudi Arabia that implies females are almost five times more likely to be involved than males in providing help and care to other family members.

Age is found to be an important variable in explaining social support. A decreasing tendency is observed in receiving financial support when linked to age in more developed countries, whereas age has an

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adverse effect in the developing world. Results from Table 7 show that in countries like the USA, Canada, UK and France there is a steady decline in receiving financial support with an increase in age and elderly people are perhaps more dependent on state support. In developing countries, where there is very little or no state support, people tend to be fully dependent on their loved ones particularly family members. This may be the reason why older people generally expect to receive more financial support compared with the developed world. The results are significant in Mexico, Hong Kong, India, Korea, Singapore, the Philippines and Saudi Arabia. With few exceptions, most developing countries receive help and care support from friends and relatives. As can be seen from Table 7, the higher the age then the greater the likelihood of receiving such support in general. In South Africa, for example, older people aged 70-79 and 60-69 years are found to have a higher chance of this by 2.137 times and 1.492 times respectively than those of the youngest age cohort. In the case of financial support, older people in developed countries such as Canada, UK, France Germany, Denmark and Japan provide relatively more financial support to family and friends. By contrast a complete opposite can be depicted for developing countries where the propensity of providing financial support becomes less with the increase in age. This carries an interesting and unique message that elderly people in developing countries are not in a position financially to support other family members and relatives. However, irrespective of any geographical boundaries, another unique finding is that the propensity of providing help and care gradually declines as age increases. For example, in the case of Turkey when compared with the age cohort 40-49 years, the probability of providing help and care has downward trends by 0.525 times, 0.472 times and 0.322 times respectively for cohorts aged 50-59 years, 60-69 years and 70-79 years.

Living arrangements have a significant positive effect on receiving financial support in some countries such as Denmark, Hong Kong and South Africa, an indication that the higher the household size the more likelihood of receiving their financial support. A similar type of evidence is found in the case of receiving help and care. For example, in Korea older people that live with another person or spouse were found to have received 5.159 times more help and care support than those living alone. Those living in a household of two or more members were found to have almost 12 times more help and care support compared to those living alone. Similar kinds of positive support are also seen in the USA, UK, Russia, Hong Kong and South Africa. While modelling the support given, we could see that the effects of living arrangements were stereotypical. In more developed countries like Germany, Denmark, Japan, and even in Singapore and the Philippines, it has a negative influence on the giving of financial support whereas household size has a significant positive effect on providing financial support in Brazil and South Africa. What this indicates is that the larger the household size the greater the likelihood there is of financial support being provided to other members and relatives. This may be due to a strong kinship structure in those countries. Older people were also found to be more associated with providing help and care support irrespective of any geographical location or territory.

As expected those who possess poor health will receive more social support and provide less support to others. Except for South Africa, this statement is found to be almost true in the USA, Canada, UK and Taiwan. This inverted U shape pattern of odd ratios needs further examination. While looking at the help and care received models we see similar findings that suggest that an elderly person in generally poor health is more likely to receive help and care support even after controlling for other factors. Table 8 shows that a poor health

condition is associated with a lower chance of providing financial support when compared with those who possess excellent health. Similar conclusions can be drawn on the findings of providing help and care. There have been only a few countries where we can see a consistent decline in support provided. Results for other countries appeared to be insignificant.

Education is found to have a significant effect on receiving financial support in developing countries. Unlike the USA, Germany and the Philippines, evidence from most countries shows that higher education is associated with a lower probability of receiving financial support. Similarly, the highly educated elderly people have a propensity of receiving relatively less help and care in Hong Kong, Malaysia, Singapore, Saudi Arabia and South Africa. However, while examining the determinants of financial support provided we see that the higher the education the more likelihood of providing financial support (Table 8). Except for Singapore and Saudi Arabia, a general consensus is that higher education is more likely to be a factor in providing help and care.

Table 7 shows that unemployed people are associated with a greater chance of receiving financial support in the UK, Russia, India, Korea and Malaysia. An unexpected negative effect has been found in the case of Hong Kong and Taiwan that needs further examination. In some countries, unemployed elderly people receive more help and care than those in white-collar occupations. In support given models, we find that an unemployed individual generally provides less support in terms of financial, help and care (Table 8). For example, a negative effect is found in Denmark, Mexico, Hong Kong, Korea, Singapore and Taiwan with a positive effect in India (OR = 2.687) and Malaysia (OR = 2.216). This may be explained partly by the fact that unemployed people usually have time in these two countries to help and care and thus the effect was found to be positive.

While analysing the effect of marital status on social support we see that those widowed, divorced and separated are more likely to receive both financial and help and care support from friends and relatives. It is not shown to have significance in all countries. Except in Japan and South Africa, elderly widowed people in the UK, Russia, Singapore and Saudi Arabia are more likely to provide financial support.

In Hong Kong and India, those who have contact with the children's generation are found to have received more financial support compared to contact with the older generation. The scenario is completely different in Denmark, Mexico, China, and even in Saudi Arabia indicating that contact with the young generally does not help in receiving financial support. However, contact with the children's generation has a significant positive effect on providing help and care in India and Saudi Arabia although Japan is an exception. Interestingly, contact with this generation has a significant influence on providing financial support. In the USA, Canada, France, Germany, Denmark, Korea and Japan it has been found to have a positive effect whereas it has a negative effect in Mexico, Singapore and Saudi Arabia. Such contact has very little influence on provided help and care although it has significant negative effects in Denmark and Singapore.

Tables 5-8 about here

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Conclusion

The findings of this study demonstrate how intergenerational transfer is influenced by the socioeconomic, demographic and cultural situations of people aged 40-79 years across various parts of the world. The results provide a clear picture about the covariates and their directions of influence not only globally but also at various levels of hierarchy such as region and country. This has given us ample opportunities to make cross regional as well as cross-country comparisons. Our analyses allow us to choose reliable estimates of the parameters in order to generalise any statements that will be valid for specific regions or a group of countries. The findings may indicate how the ongoing social and demographic transformations in different places have contradictory and paradoxical effects upon the nature of intergenerational exchanges.

Utilising the aggregate data, this study reveals that gender plays a specific role in explaining intergenerational transfers. Females are found to have the highest rates of receiving financial transfers as well as providing help and care transfers. In contrast, they are less likely to provide financial transfers or receive help and care from others as compared with their male counterparts. This is found to be consistent with what would have been expected and confirm results of earlier studies. We further tested and checked how consistent the statements at regional as well as country level were by using disaggregate data. For the regional analysis we found that in all five regions older women receive higher financial support than older men, but interestingly that women in Europe and Latin America received more help and care support. This contradicts our findings from aggregate data analysis although Asia reveals a similar pattern and statistical significance. This finding carries an important message as to how vulnerable older women are in Asia. We analysed this further at country level and drew a conclusion on the basis of the results that indicated that except for Taiwan, older women in Hong Kong, India, Korea, Malaysia and Saudi Arabia were less likely to receive help and care support from friends and relatives. This finding indicates once again the lower position of women in Asian society in terms of their financial security and care transfers. Intergenerational transfers are strongly influenced by the position of individuals on their life courses.

Respondents of a certain age may have a complex exchange network within the family where they usually exchange support. It has been found that old age is associated with higher propensity for receiving both financial as well as material (care and help) support on the one hand and a lower rate of support provided by them on the other. This generally confirms the findings of previous studies. However, there exists a wide range of variation among the five geographical regions. In North America and Europe, a lower propensity of receiving financial support is found, whilst a higher propensity of receiving financial transfers is found in Latin America, Asia and Middle East/Africa. The effect of age on receiving help and care support seems to be a puzzle. It is found to have a significant positive effect in Asia and Middle East/Africa that means a higher likelihood of receiving help and care increased with age. A lower chance of providing social support is found with an increase in age. Although this is a general picture it is particularly strong in Asia and Latin America.

The effect of household size was found to be statistically significant. It is conventionally assumed that co-residence with a child is indicative of net flows of support up the generations, from younger to older. It has been found that social support is interlinked with existing household size which means that the larger the

household the more likelihood of receiving social support in old age. Such kinds of support are found to be relatively more prevalent in developing countries. This may be explained by the fact that poverty is still a cause for real concern in old age. The big challenge would be to coordinate intergenerational transfers in a way that eradicates social exclusion and reduces social inequality.

This paper has assessed the role of self reported health condition on social support. Health is a real concern in old age in every society among family members and it is worthwhile to investigate what role the elderly can play in their families and vice versa. As mentioned previously, elderly people are not always a burden but are often a helpful asset in the welfare of their families. They can make significant practical or material contributions to family welfare. Elderly people continue to provide social support even when their children are grown up. It has been found that there is a gradual increase in receiving both financial and material support with deteriorating health and so they are less likely to be associated with providing social support. A similar conclusion may be drawn from all five geographical regions and it is a common phenomenon in all societies. This finding supports our hypothesis and verifies the claim previously made by researchers.

Although education is found to be less pronounced in the case of receiving support it plays a significant role in providing both financial as well as material support. It has been found that the higher the education the more likelihood of providing social support. A similar conclusion can be drawn across regions. Therefore, education should be encouraged in all societies and most particularly in less developed countries.

It may be assumed that unemployed people receive more financial support but are less likely to provide intergenerational transfers. As expected, our study supports such a statement although there have been inconsistent findings across different geographical regions. Marital status plays an important role in old age. Those who have a spouse or are living with a long-term partner are expected to have a better quality of life. Our study reveals that those who are married and widowed receive more intergeneration support than those who are single. This may be attributable to the fact that children or close family members always try to help their elderly members and this is universal in every society.

Contact across generations is a long human tradition no matter to which society people usually belong. This study demonstrates that there is an increasing trend for contact with the children's generation compared with the immediate past generation (parent's generation). This seems to be a positive attitude but, however, does not reflect how strong the relationship is among these generations with regard to intergenerational transfers. This study has examined those facts and found that contact with the children's generation does not show any significant influence on financial support. On the other hand, contact with children has a higher likelihood of providing financial transfers compared with the parent's generation. In turn, children receive a lot help and support from older people. This indicates that there is a trade off going on between generations and a balance of negotiation can give us the optimum levels of satisfaction.

In the study our aim has been to investigate the key determinants of social supports across various geographical regions. It has been discussed that the findings may not be the same for all the regions but there are some common factors that help to form some solid conclusions. A number of implications may be summarised. Firstly, the findings add to the growing body of evidence that elderly people cannot be treated as a homogeneous group even when considering a single country; secondly, further research is needed to investigate

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the contributions made by active elderly people in a variety of settings and situations and thirdly, there is an obvious need for further and larger scale research on developing countries.

Limitations and Directions of Further research

Although the research has indicated important findings, yet it suffers from some limitations which can be addressed in the future studies. The study has suggested impotent findings at various levels such as at geographical region, country and as well as at individual level. Results are then compared by looking at the significance of the parameters for each model. However, it has failed to test how significant is the variation in intergenerational support and transfer at various levels of hierarchy. This is an important issue for any global ageing research and can be investigated further by an employing multi-level analysis. There are important unobserved variables such as percentage urbanized, religiosity and remittances from migration which should be included in future studies. Unfortunately they are not readily available in the GLAS data. In the present study samples are selected roughly around 1000 for each country and hence it is suggested that the future study may consider nationally representative survey for comparing the results. Finally, the study considers data which was just before the world entered the economic downturn and one would speculate how the effects of covariates might vary during the global economic crisis. It is suggested that during the economic crisis the financial transfer between generations may drop a bit on the one hand, however help and other support including volunteerism is expected to increase on the other. Thus further study is needed to answer this question precisely.

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Figure

Figure 1: Support ratios between population aged 65+ years and 15-64 years

Proportion of population aged 65+ and 15-64 years during 2000-2050
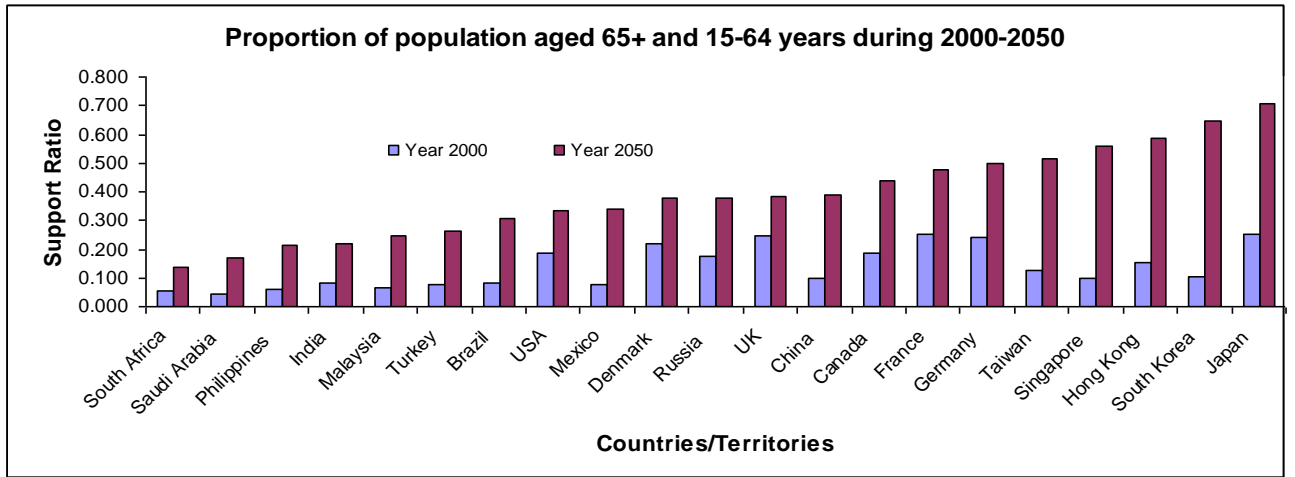
Source: UN (2005) and U.S. Census Bureau (2007).

Table

Table 1: List of selected covariates and their measurements used for the analysis

Variables	Classification and measurement	Percent	Cases
Gender	Male = 0	46.4	9,852
	Female = 1	53.6	11,381
Age cohort	40-49 years = 1	25.0	5,308
	50-59 years = 2	25.1	5,329
	60-69 years = 3	25.1	5,329
	70-79 years = 4	24.8	5,267
Household size	Live alone = 1	11.7	2,484
(Living arrangement)	Live with spouse = 2	28.7	6,094
	Live with other household members = 3	59.6	12,655
Self reported Health	Very good = 1	22.8	4,841
	Good = 2	37.3	7,920
	Fair = 3	29.7	6,306
	Poor & very poor = 4	10.2	2,166
Education	Primary or less = 1	36.2	7,686
	Secondary = 2	33.7	7,155
	Tertiary & higher = 3	30.1	6,392
Occupation	White collar job = 1	21.8	4,629
	Blue collar job = 2	36.9	7,835
	Other jobs = 3	22.6	4,798
	Unemployed = 4	18.7	3,971
Marital status	Single = 1	5.4	1,147
	Married & long term partner = 2	71.5	15,181
	Widowed & divorced, separated = 3	23.1	4,905
Generation contact	Contact with parent's generation = 0	5.8	1,231
	Contact with children's generation = 1	94.2	20,002
Region	North America = 1	9.8	2,081
	Europe = 2	24.0	5,096
	Latin America = 3	9.4	1,996
	Asia = 3	42.5	9,024
	Middle East/Africa = 4	14.3	3,036
Received financial support	No = 0	79.4	16,859
	Yes = 1	20.6	4,374
Provided financial support	No = 0	62.8	13,334
	Yes = 1	37.2	7,899
Received help & care support	No = 0	72.7	15,436
	Yes = 1	27.3	5,797
Provided help & care support	No = 0	65.8	13,971
	Yes = 1	34.2	7,262

Note: Total number of respondents N = 21,233.

Table 2: Percent distribution of respondents involved in financial and help & care transfers by their selected characteristics for aggregate global data

Characteristics	Financial transfer		Help & Care transfer	
	Received	Provided	Received	Provided
Gender				
Male	17.8 [1750]	38.0 [3743]	28.0 [2757]	30.6 [3016]
Female	23.1 [2632]	36.5 [4155]	26.6 [3034]	37.3 [4245]
	p<0.000	p<0.05	p<0.05	p<0.000
Age				
40-49	17.7 [939]	40.2 [2134]	24.5 [1301]	40.3 [2144]
50-59	18.0 [962]	41.6 [2216]	24.5 [1308]	38.6 [2056]
60-69	21.0 [1116]	37.4 [1988]	26.7 [1421]	33.5 [1782]
70-79	25.9 [1365]	29.6 [1560]	33.4 [1761]	24.3 [1279]
	p<0.000	p<0.000	p<0.000	p<0.000
Living arrangement				
Live alone	13.4 [332]	32.4 [800]	19.0 [469]	26.1 [644]
Live with couple	15.0 [907]	37.5 [2259]	20.7 [1247]	34.3 [2066]
Live with family members	24.9 [3117]	38.3 [4794]	32.2 [4038]	36.1 [4520]
	p<0.000	p<0.000	p<0.000	p<0.000
Health condition				
Very good	11.8 [571]	38.8 [1877]	18.8 [911]	38.5 [1862]
Good	19.3 [1528]	38.2 [3027]	24.3 [1927]	36.9 [2923]
Fair	25.5 [1605]	36.2 [2282]	31.4 [1976]	29.7 [1873]
Poor or very poor	31.4 [678]	32.9 [712]	45.2 [977]	27.9 [603]
	p<0.000	p<0.000	p<0.000	p<0.000
Education				
Primary or less	24.0 [1847]	29.4 [2261]	29.7 [2279]	30.1 [2314]
Secondary	21.9 [1572]	38.3 [2745]	28.7 [2060]	35.7 [2560]
Tertiary	15.1 [963]	45.3 [2892]	22.7 [1452]	37.4 [2387]
	p<0.000	p<0.000	p<0.000	p<0.000
Occupation				
White collar	12.7 [537]	45.5 [1929]	25.3 [1073]	40.7 [1724]
Blue collar	18.6 [1338]	33.2 [2385]	23.8 [1712]	31.1 [2231]
Other jobs	22.0 [968]	42.6 [1872]	29.3 [1285]	37.3 [1638]
Unemployed	33.7 [1222]	31.4 [1139]	33.5 [1216]	34.6 [1256]
	p<0.000	p<0.000	p<0.000	p<0.000
Marital status				
Single	15.1 [173]	30.0 [345]	17.1 [197]	29.1 [334]
Married/Long term partner	18.8 [2839]	38.9 [5880]	25.9 [3913]	35.7 [5396]
Widowed/Divorced/Separated	27.8 [1354]	33.8 [1648]	34.2 [1667]	30.9 [1507]
	p<0.000	p<0.000	p<0.000	p<0.000
Generation contact				
Parent generation	14.0 [160]	32.0 [366]	16.9 [193]	36.4 [416]
Children generation	21.0 [3889]	38.3 [7087]	27.9 [5165]	34.9 [6449]
	p<0.000	p<0.000	p<0.000	p=0.285
Regions				
North America	5.4 [113]	42.9 [890]	14.3 [296]	41.7 [866]
Europe	8.6 [440]	40.5 [2062]	18.4 [936]	40.3 [2052]
Latin America	16.6 [333]	30.2 [604]	18.8 [377]	20.5 [411]
Asia	29.5 [2665]	35.3 [3184]	31.5 [2844]	29.9 [2703]
Middle East/Africa	27.4 [831]	38.2 [1158]	44.1 [1338]	40.5 [1229]
	p<0.000	p<0.000	p<0.000	p<0.000

Note: Figures in the parenthesis indicate number of cases. Variation between subgroups is carried out by Chi-Squared test.

Table 3: Correlation matrix among independent and dependent variables for aggregate global data

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Gender	1.000												
2. Age	-.032	1.000											
3. Household size	-.032	-.310	1.000										
4. Self reported health	.055	.248	-.004[a]	1.000									
5. Education	-.098	-.197	.020	-.219	1.000								
6. Occupation	.251	.112	.091	.186	-.229	1.000							
7. Marital status	.175	.293	-.109	.147	-.140	.093	1.000						
8. Generation contact	.041	.198	.167	.075	-.087	.069	.230	1.000					
9. Region	-.076	-.022	.384	.134	-.151	.269	-.052	.030	1.000				
10. Received financial support	.066	.077	.126	.150	-.088	.164	.095	.041	.228	1.000			
11. Provided financial support	-.016	-.082	.027	-.034	.134	-.059	-.017	.030	-.059	.129	1.000		
12. Received help & care support	-.015	.072	.134	.165	-.062	.071	.095	.058	.162	.402	.186	1.000	
13. Provided help & care support	.070	-.124	.048	-.082	.063	-.019	-.020	-.008[a]	-.098	.152	.306	.240	1.000

Notes: Coefficients indicate Pearson correlation significance at 5% level with 2-tailed tests. N = 21,233
a. indicates coefficient not statistically significant at 5% level.
Region is classified into two groups: Western region (North America and Europe) = 0 and Other region (Asia, Latin America and Middle East/Africa) = 1.

Table 4: Odds ratios of logistic regression analysis for financial and help & care transfers based on aggregate global data

Characteristics	Financial transfer		Help & Care transfer	
	Received	Provided	Received	Provided
Gender				
Male (ref.)				
Female	1.310***	0.962	0.880***	1.302***
Age				
40-49 (ref.)				
50-59	0.948	1.100**	0.936	0.975
60-69	1.102*	0.916*	1.049	0.853***
70-79	1.332***	0.666***	1.339***	0.579***
Living arrangement				
Live alone (ref.)				
Live with couple	1.384***	1.009	1.324***	1.441***
Live with family members	1.759***	0.943	2.029***	1.659***
Health condition				
Very good (ref.)				
Good	1.594***	1.145***	1.318***	1.084*
Fair	1.796***	1.162***	1.637***	0.848***
Poor or very poor	2.462***	1.055	2.903***	0.821***
Education				
Primary or less (ref.)				
Secondary	1.223***	1.378***	1.241***	1.169***
Tertiary	1.056	1.730***	1.088*	1.178***
Occupation				
White collar (ref.)				
Blue collar	1.166*	0.694***	0.758***	0.739***
Other jobs	1.502***	1.032	1.056	1.038
Unemployed	1.533***	0.715***	0.811***	0.905*
Marital status				
Single (ref.)				
Married/Long term partner	0.780**	1.246**	1.058	1.149
Widowed/Divorced/Separated	1.384***	1.159	1.760***	1.169
Generation				
Parent generation (ref.)				
Children generation	1.154	1.480***	1.230**	0.901
Regions				
North America (ref.)				
Europe	1.511***	1.012	1.238***	1.037
Latin America	2.882***	0.670***	1.176*	0.378***
Asia	6.007***	0.860***	2.196***	0.607***
Middle East/Africa	4.228***	1.036	3.208***	1.045
-2 Log likelihood	16417.90***	23142.12***	19556.69***	22437.03***
Number of observations	17867	17867	17867	17867

*Note: Odds ratio for reference category (ref.) is 1.000. Significant at *p<0.10; **p<0.05; ***p<0.01*

Table 5: Odds ratios of logistic regression analysis on support received

Characteristics	North America Financial transfer	North America H & Care transfer	Europe Financial transfer	Europe H & Care transfer	Latin America Financial transfer	Latin America H & Care transfer	Asia Financial transfer	Asia H & Care transfer	Middle East/Africa Financial transfer	Middle East/Africa H & Care transfer
Gender										
Female	2.290***	1.244	1.529***	1.581***	1.581***	1.455**	1.221***	0.609***	1.688***	1.061
Age										
50-59	0.690	0.892	0.804	0.891	0.751	0.882	1.031	0.899	0.991	1.240*
60-69	0.274***	0.889	0.670**	0.771*	1.343	1.165	1.175**	0.968	1.523***	2.254***
70-79	0.211***	1.446	0.508***	0.826	1.500**	1.323	1.520***	1.355***	2.310***	2.552***
Living arrangement										
Live with couple	0.792	1.386	1.232	1.392**	0.869	0.848	1.579***	1.829***	1.246	0.967
Live with family members	1.481	1.864	1.825***	2.591***	0.824	1.031	1.571***	2.021***	2.831***	2.731***
Health condition										
Good	2.477***	1.548***	1.869***	1.511***	1.194	0.692*	1.686***	1.688***	1.159	0.745***
Fair	3.737***	2.736***	4.387***	3.022***	1.806**	1.499*	1.657***	1.634***	0.895	0.661***
Poor or very poor	10.86***	9.885***	4.619***	4.526***	2.723***	2.199***	2.712***	3.296***	0.715*	0.886
Education										
Secondary	2.576**	1.129	1.723***	1.337***	1.438*	0.935	1.078	0.984	1.095	1.565***
Tertiary	2.916**	1.118	2.354***	1.466***	1.308	0.836	0.886	1.005	0.583***	0.817
Occupation										
Blue collar	1.534	0.971	0.896	0.645***	1.055	0.830	1.382***	1.062	1.103	0.374***
Other jobs	1.189	1.208	1.895***	0.985	1.128	0.896	1.823***	1.479***	0.826	0.413***
Unemployed	1.898	0.963	3.366***	1.367	1.104	0.678	1.829***	1.094	0.843	0.446***
Marital status										
Married/Long term partner	0.218***	0.475**	1.152	0.641*	1.828*	1.699	0.791	1.468*	0.455***	0.887
Widowed/Divorce/Separated	0.725	0.956	3.284***	1.525	2.452**	2.126**	1.269	2.337***	0.560**	1.081
Generation										
Children generation	1.017	0.956	0.560**	0.895	0.637	0.964	2.066***	1.490***	0.459***	1.126
-2 Log likelihood	658.58***	1412.66***	2247.39***	475.61***	1378.13***	1449.33***	9175.44***	9459.77***	2443.19***	2876.39***
Number of observations	1843	1843	4356	4356	1493	1493	7880	7880	2295	2295

*Note: Odds ratio for reference category (ref.) is 1.000. Significant at *p<0.10; **p<0.05; ***p<0.01*

Table 6: Odds ratios of logistic regression analysis on support provided

Characteristics	North America Financial transfer	North America H & Care transfer	Europe Financial transfer	Europe H & Care transfer	Latin America Financial transfer	Latin America H & Care transfer	Asia Financial transfer	Asia H & Care transfer	Middle East/Africa Financial transfer	Middle East/Africa H & Care transfer
Gender										
Female	0.950	1.211**	1.023	1.118*	1.086	2.367***	0.892**	1.249***	0.975	1.835***
Age										
50-59	1.530***	1.035	1.391***	1.189**	1.291*	1.005	0.862**	0.900	1.034	0.864
60-69	1.330*	0.867	1.053	0.928	1.044	0.697**	0.707***	0.785***	1.054	1.197
70-79	0.922	0.607***	0.787**	0.539***	0.660**	0.322***	0.482***	0.607***	0.936	0.769*
Living arrangement										
Live with couple	1.118	1.525**	0.958	1.204	1.481	4.463***	1.073	2.390***	1.459	1.830**
Live with family members	1.051	1.729***	0.798*	1.402***	1.624*	5.738***	0.957	2.206***	2.013***	3.802***
Health condition										
Good	1.072	0.873	1.114	1.069	1.041	1.244	1.303***	1.440***	0.992	0.654***
Fair	1.157	0.850	1.367***	0.962	1.310	1.509*	1.145*	1.019	1.010	0.420***
Poor or very poor	0.561**	0.969	1.149	0.792*	1.097	1.048	1.230**	1.349***	0.805	0.301***
Education										
Secondary	1.445**	1.425**	1.508***	1.030	1.054	0.921	1.198***	1.038	1.570***	1.886***
Tertiary	1.626***	1.253	1.930***	1.048	1.339**	1.230	1.657***	1.303***	1.661***	1.099
Occupation										
Blue collar	0.799*	0.924	0.712***	0.743***	0.842	1.008	0.635***	0.788***	0.771*	0.582***
Other jobs	0.775**	0.940	0.964	1.042	0.763	0.995	1.241***	1.367***	0.967	0.516***
Unemployed	0.645*	0.589**	0.979	0.868	0.635**	0.552**	0.780***	1.085	0.636***	0.736*
Marital status										
Married/Long term partner	0.973	0.874	1.468*	1.162	1.318	1.264	1.541**	1.176	0.821	1.065
Widowed/Divorce/Separated	0.937	1.092	1.590**	1.290	0.996	1.047	1.361	1.161	0.722	0.827
Generation										
Children generation	2.191***	1.198	1.863***	0.675***	0.569**	0.755	1.544***	1.133	0.553***	0.580**
-2 Log likelihood	2463.23***	2469.14***	5740.56***	5773.79***	1853.78***	1500.76***	9905.84***	9512.14***	2940.78***	2788.26***
Number of observations	1843	1843	4356	4356	1493	1493	7880	7880	2295	2295

*Note: Odds ratio for reference category (ref.) is 1.000. Significant at *p<0.10; **p<0.05; ***p<0.01*

Table 7: Odds ratios of significant logistic regression parameter estimates in support received models.

Received Financial Support

	USA	Canada	UK	France	Germany	Denmark	Russia	Brazil	Mexico	China	Hong Kong	India	Korea	Japan	Malaysia	Singapore	Philippines	Taiwan	Turkey	Saudi Arabia	South Africa
Female	3.131		2.168				1.631	2.427	1.513				11.553		1.792		1.699				1.73
Age 50-59	0.500		0.409				0.528					1.389							0.551		
Age 60-69	0.199	0.317	0.290	0.170					1.624			2.269	1.509	2.423		2.001	1.614		0.488		1.689
Age 70-79	0.193	0.198	0.135	0.073	0.143				1.751			3.248	1.792	4.15		3.218	2.063				2.216
Live with couple												4.001									
Live with family members						3.968						4.512									2.084
Good health	3.991		2.128															2.982	1.418		1.781
Fair health	5.363	2.694	3.085												1.756			4.454			2.398
Poor or very poor health	15.118	9.357	3.713						2.647			1.547				3.100		8.057			1.746
Secondary education															0.361	0.530	1.805	0.317		0.549	
Tertiary	7.503			2.673								0.390			0.312	0.361	1.820	0.126	0.382		0.601
Blue collar															2.203						
Other jobs							1.655			0.523		2.142			2.708						
Unemployed			6.648				2.455					0.541	2.625	1.789	2.950			0.282			
Married/Long term partner	0.243	0.192																0.070			0.524
Widowed/Divorced/Sep									2.648									0.115			0.533
Children generation						0.232				0.473	0.348	11.53	2.76							0.375	

Received Help & Care Support

	USA	Canada	UK	France	Germany	Denmark	Russia	Brazil	Mexico	China	Hong Kong	India	Korea	Japan	Malaysia	Singapore	Philippines	Taiwan	Turkey	Saudi Arabia	South Africa
Female			1.752				2.475		1.776			0.429	0.731	0.089	0.538			1.863	2.134	0.623	
Age 50-59			0.646	0.076	1.682																
Age 60-69				0.289		0.496	0.682						2.356					2.237	2.171		1.492
Age 70-79				0.208		0.630				1.790			1.530	2.746		3.247		2.544	1.687	2.177	2.137
Live with couple			2.163										5.159					1.729			
Live with family members	2.091		2.598				2.465					3.123	12.111								1.854
Good health	2.806		1.636							0.534			1.430	1.756	2.096		0.722				
Fair health	4.233	2.136	4.944			1.751				1.982			1.472		3.120		0.675	1.795			1.969
Poor or very poor health	20.743	5.338	10.156	8.715	3.477	4.018				3.189			2.142	3.934	5.360			5.556		4.526	3.170
Secondary education			2.111										0.589		0.367	0.503		0.477		0.428	
Tertiary	2.673		1.649			1.804	1.604					0.213			0.287	0.601				0.242	
Blue collar												0.390	1.370		1.995	1.849					0.620
Other jobs			0.460										1.896		2.746					0.523	
Unemployed			3.079									0.361	1.831		2.231						
Married/Long term partner	0.387																				
Widowed/Divorced/Separated													3.926	3.620							
Children generation													2.257	0.303							2.217

Note: Odds ratio for reference category (ref.) is 1.000. Figures are at least significant at 5% level.

Table 8: Odds ratios of significant logistic regression parameter estimates in support provided models.

	USA	Canada	UK	France	Germany	Denmark	Russia	Brazil	Mexico	China	Hong Kong	India	Korea	Japan	Malaysia	Singapore	Philippines	Taiwan	Turkey	Saudi Arabia	South Africa
Provided Financial Support																					
Female				1.404												0.491	1.293				
Age 50-59		1.707	1.411			1.510			1.384	0.680							0.632				
Age 60-69		1.542		1.547									0.594	1.879	0.548	0.360					
Age 70-79									0.418	0.558	0.279			0.258		0.371	0.464		0.306	0.342	
Live with couple						0.407		3.357						0.410		0.243		0.228			2.821
Live with family members				0.494		0.470		4.078						0.255							3.603
Good health			1.344							0.602									0.522		
Fair health			1.585	0.585						0.579	0.471								0.435	2.448	1.589
Poor or very poor health		0.292								0.352	0.358					0.330		0.410	0.335	2.278	
Secondary education			1.615								1.699	1.621		3.394							
Tertiary	2.141	1.386	2.541	1.470	1.480	2.176				1.443				2.222	1.647	2.166		1.552	1.655		1.878
Blue collar		0.694				0.689	0.678	0.328	1.738		0.540	0.425		0.364	0.594	0.499	0.259				
Other jobs	0.721		1.445				0.605	0.428				0.478				0.551	0.338				1.707
Unemployed							0.579	0.275			0.254	0.286		0.257		0.264	0.220			0.553	
Married/Long term partner			2.446				5.231									8.259			14.53	0.629	
Widowed/Divorced/Sep.			3.255				4.092								0.217	4.102			10.42	0.601	
Children generation	2.745	1.712		3.677	3.093	2.088				0.388				4.975	3.509	0.423				0.345	
Provided Help & Care Support																					
Female	1.319			1.625				2.053	2.599	1.908	1.689	1.396	1.746	1.731	1.936			1.973	2.206	5.049	1.87
Age 50-59			1.86	1.515												0.671			0.525		
Age 60-69										0.562				1.850					0.472		
Age 70-79	0.511		0.312			0.448				0.222	0.429						0.548	0.431	0.322	0.392	
Live with couple	1.605							8.080	3.355					11.951		3.459				3.342	2.313
Live with family members	1.925					1.956	1.596	11.747	3.879					8.646						2.651	
Good health										0.567										0.618	
Fair health						0.642					0.499	0.644		0.489		0.560				0.348	
Poor or very poor health	0.469		0.206	0.501							0.321	0.283		0.479						0.101	
Secondary education			1.668	1.445							1.693	1.587				0.665			1.715		
Tertiary			1.797									1.521								0.346	
Blue collar											0.643			0.529		0.629		0.386		0.571	
Other jobs			0.681										1.921		2.587			0.488		0.434	
Unemployed						0.387			0.483		0.568	2.687		0.478	2.216	0.570		0.369			
Married/Long term partner			2.410							0.162					0.182	3.903				8.101	
Widowed/Divorced/Separated															0.454	5.539					0.567
Children generation						0.447										0.426					

Note: Odds ratio for reference category (ref.) is 1.000. Figures are at least significant at 5% level.

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