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CAPP*aper* n. 107
ottobre 2013

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October 2013

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Abstract

This paper will focus on the living conditions of disabled people with different degree of limitations as regards to daily activities.

In a first step of analysis we focus on the predictors of four specific domains of life satisfaction. In a second step, we attempt to define the different well-being dimensions of disabled people by using the indicators available in the 2011 ISTAT Survey on social inclusion of people with disabilities and by comparing the well-being attainments with respect to the different levels of functional limitations. Given the relevance of social interaction in the life satisfaction of individuals, we focus on this dimension of well-being by analysing the effect of functional limitations on its development, measured by using the observable indicators on the satisfaction of interaction with friends and relatives, the extent of this interaction, and frequency and satisfaction on internet use.

Key words: disability, well-being, life satisfaction, social interaction.

Introduction[1]

The interest for subjective well-being (SWB), happiness and life satisfaction has increased during the last years also in socio-economic literature. In this context, life satisfaction measures how people evaluate their life as a whole rather than their current feelings. It captures a reflective assessment of which life circumstances and conditions are important for subjective well-being (OECD, 2012).

As underlined by Conceição and Bandura (2008), happiness and life satisfaction are components of SWB, where life satisfaction reflects individuals' perceived distance from their aspirations. Life satisfaction captures a reflective assessment of which life circumstances and conditions are important for subjective well-being and it has been considered to be a central aspect of human welfare (Haybron, 2005). According to psychology, life satisfaction is a cognitive element of SWB, and SWB is comprised by four elements: pleasant emotions, unpleasant emotions, life evaluation and domain satisfaction (including health, relationships, leisure, economic conditions and so on). Even if according to the psychological literature life satisfaction and happiness diverge, economists have used them as synonymous.

The increasing literature focusing, in turn, on SWB, life satisfaction and specific domains of satisfaction, has been sometimes intersected with specific sub-groups of analysis. However, while the medical and psychological researches have devoted attention to the specific situation of disabled people, the economic literature include only few papers analyzing these specific sub-groups.

This paper brings new evidence about life satisfaction of disabled people in Italy, analyzing information on people with functional limitations and health problems who live in households, as provided by the 2011 ISTAT survey. The dataset oversamples those individuals with limitations showing also a high age on average. Moreover, the case of Italy could be particularly interesting because of the increasing ageing of Italian population and of the increase of elderly people not in good health.

The analysis is twofold. In a first step we focus on the predictors of four specific domains of life satisfaction of sampled individuals: satisfaction with relatives relations, friends relations, economic conditions and leisure time; and second, we analyze the presence of unobservable factors jointly affecting the four satisfaction domains. In a second step, given the relevance in individual well-being of social interaction, we have analysed more in depth this dimension of social well-being and

[1] This paper is part of the research activities carried out within the PRIN research project "Measuring human development and capabilities in Italy: methodological and empirical issues" by the Pescara and Modena units. It has been submitted to the PRIN workshop in the Department of Economics of Pescara, 22-23 April 2013, in July 2013 to the X Jornadas de Economía Laboral held in Madrid and in September 2013 to the AIEL conference on Labour Economics held in Rome. We thank the participants for the stimulating comments provided on the previous versions of this paper. The usual disclaimers apply. All errors and omissions are those of the authors.

measured it as a latent variable by estimating a MIMIC model, which allows us to consider simultaneous indicators and also exogenous causes for the latent factor called 'social interaction'.
This paper is divided as follows. In section 1, we refer to the literature on life satisfaction and social interaction. In section 2, we introduce the data analysed and we describe the characteristics of the population. In section 3, we present the methodologies and the empirical models employed, while in section 4 are summarized the main empirical findings of the paper. Finally, section 5 wraps up the analysis with some concluding remarks.

1. Disability, life satisfaction and social interaction: the literature

The economic literature focusing on subjective well-being has increased strongly in the last decades. Recent studies have particularly exploited both large datasets to enrich the set of factors to control variability in subjective well-being and the panel structure of data to control the role of time-invariant individual effects, including personality (Dolan et al., 2008). This strand of literature includes studies focusing on life satisfaction (e.g. job satisfaction, relationship satisfaction, health satisfaction), that may be seen as a specific aspect of well-being.
Evidence on subjective well-being has highlighted the role of income, personal characteristics (e.g. age, gender, ethnicity, personality), socially developed characteristics (e.g. education, health, work), time allocation (e.g. hours worked, care activities, community involvement and volunteering, exercise, religious activities), attitudes and beliefs, relationships (including marriage, having children, seeing family and friends) and economic, social and political environment. Even though results cannot be considered as conclusive, milestones from these studies suggest to consider the impact of income, relative income, health, personal and community relationship, employment and marital status in their analysis.
When focusing on disability, the literature is more recent but limited. A relevant finding connected to activity limitations and ageing (then strictly connected with limitations in daily activities) concerns its U-shaped form effect, for which higher well-being is found for younger and older individuals (Easterlin, 2006; Blanchflower and Oswald, 2008). In this context, analyzing older married adults, Freedman et al. (2012) find that disability affects negatively subjective well-being, and that well-being variability, because of disability, is greater for somatic symptoms and for satisfaction with health or memory, while the support of participation is only limited. Nevertheless, Riis et al. (2005) find only small differences in the reported life satisfaction or happiness between disabled and non-disabled people.
As anticipated, a wide literature concerns life satisfaction and its intersection with specific sub-groups, including disability. However, life satisfaction and disability have been topics of analysis

especially in medical and psychological research fields, while socio-economic literature is quite limited.

A stream of the medical and psychological literature has looked at the association between physical disability and life satisfaction. Menhert et al. (1990) find evidence of a negative relationship, even if the extent of disability seems to be irrelevant in determining the extent of life satisfaction (Nosek, Fuhrer and Potter, 1995). A study by Kinney and Coyle (1992) shows that the most significant predictor of life satisfaction of physically disabled people is the leisure satisfaction, and that a significant role is played by financial status, self-esteem, health satisfaction, religious activities and marital status. Lucas-Carrasco and Salvador-Carulla (2012) examine life satisfaction among intellectually disabled people. They find that those living in residential institutions are less satisfied when compared with persons living in community facilities or living at home, and that health, relationships, home environment and job are relevant in determining life satisfaction. In a older study, Schwartz and Rabinovitz (2003) find that life satisfaction of people with intellectual disability living in community residences is positively correlated with that of the community's staff. Miller and Chan (2008) find that life satisfaction of intellectually disabled people is significantly associated, among others, to social support and interpersonal skills. Jang et al. (2004), investigate the role of social engagement in life satisfaction. They find that individuals with both disease and disability have significantly lower levels of participation in social activities and life satisfaction, and that social engagement explains more of life satisfaction when compared with individuals with a disease but no disability. Mailhan et al. (2005), studying life satisfaction after a severe traumatic brain injury, find that disabled patients were on average slightly dissatisfied with their cognitive functions, physical abilities and self-esteem. Mollaoğlu et al. (2010) focus on the life satisfaction of elderly people with mobility disability. They find that disability affects significantly their life satisfaction, and that age, education and health perception level are key-variables in explaining life satisfaction. Osberg et al. (1987) find that life satisfaction of elderly disabled people is strictly connected to functional capacity.

The socio-economic literature include, amongst others, an old study by Grant and Chappell (1983), that investigates elderly disabled attending three days hospital in Canada. They find a significant role by perceived health, ethnicity and differential services. More recently, the effect of disability on life satisfaction mainly exploited the longitudinal dimension of databases to focus on the relationship between life satisfaction and the adaptation of disabled people to the disability shock. Evidence on that has been mixed (Easterlin, 2005). An initial negative effect of disability on life satisfaction that fades away over time is found, amongst others, by Pagán-Rodríguez (2010) on German Socioeconomic Panel data; partial adaptation is found by Oswald & Powdthavee (2008),

while no evidence of this adaptation effect is found by Lucas (2007), exploiting the German Socio-Economic Panel and the British Household Panel Study data. The degree of adaptation in the satisfaction on different domains of life has been found to be related to the type of disability (Powdthavee, 2009). An important result in this context has been found by Boyce and Wood (2011), which show that personality traits prior to the onset of illness or disability may influence how well an individual psychologically adjusts after the illness or disability has occurred.

Other studies focus on specific dimensions of life satisfaction. In particular, the socio-economic literature mainly investigates the association between disability and job-satisfaction. Uppal (2005) emphasizes that, after controlling for certain workplace characteristics, individuals with a mobility disability are no longer likely to be less satisfied as compared to individuals without disabilities. This result opens some questions about the role of absence of assistive technology, adaptation and employer accommodations. Malo and Pagán (2009) show that disabled individuals are more likely to be more satisfied in their jobs than non-disabled ones, but only after controlling for some specific variables. This finding could be explained by the lower expectations about jobs of disadvantaged groups.

Social interaction and quality of life and the case of disabled people

The relevance of being included in a social network of relatives and friends on other dimensions of well-being and life satisfaction has been found, amongst other authors, with regards to elderly by Florence (2001) and Sener et al. (2008), and with regards to intellectual disabled persons by Campo, Sharpton, Thompson & Sexton (1997) and by Miller & Chan (2008). Mendes de Leon et al. (1999) show that larger networks have a positive effect on the recovery of disability and on reducing its development.

Quality more than quantity of contacts have been found to positively affect elderly well-being as shown by Sener, Oztop, Doğan and Guven (2008) survey on the impact of interaction with children and grandchildren with elderly. They also show mixed evidence as far as the relationship with siblings is concerned, however they warn about the lack of consideration in the literature of the quality of relationship with siblings. The interaction with adult children can have a negative effect on elderly people well-being when undesired as Silverstein, Chen & Heller (1996) show. Roberto & Husser (2007) by using qualitative interviews to a sample of 58 older women with multiple health problems in the USA show that social relationships act both as resources and as obstacles in the adaptation of women's daily life to their chronic illness problems with contrasting effects on physical health and emotional well-being. Roberto & Husser (2007) show the occurrence of obstacles from social network to the development of older women's well-being when: ‘ ... the

receipt of support deflated the women's sense of self and well-being when the provider of support was not knowledgeable of or sensitive to the intersection of their life values and current needs.' (Roberto & Husser, 2007, p.405).

Though considering different domains of life satisfaction the most negative effect of disability has been found to be on the health dimension, but also a negative impact of disability on individual's satisfaction on social life has been found to occur (Powdthavee, 2009).

2. Data and descriptive statistics

In order to measure disabled people's well-being we use the 2011 Italian National Statistical Office Survey on Not Self Sufficient Individuals' Social inclusion that collects information in 2011. The survey is directed to people with functional limitations and health problems who live in households and aims to analyse their social integration in everyday life (e.g. at school, at work and during leisure activities) and to understand which factors limit their full participation in the society (e.g. lack of access and limitation in mobility). People involved in the survey (through the CATI method, computer assisted telephone interview) are those who stated some functional limitations in a previous survey taken in 2004-2005 ('Health conditions and use of health services survey'). The sample is composed of 3,121 persons between 11 and 87 years old and it should be representative of the 3 million and 947 thousand people of the same age. However, given the particular sampling design, the questionnaire is not aimed at people with limitations risen after the period 2004-2005. Individuals excluded from the analysis are those who passed away in the meanwhile, have been institutionalized, have moved abroad or declared very slight limitations in the preliminary interview in 2011.

Women represent 62% of the sample and, as descriptive statistics in Table 2.1 show, they are on average older than men: women's average age is 72 against 67 for men, and are more likely to be single (43% of them is single and 17% of men). About 40% of interviewees live in the South of Italy and on average their level of education is low (43% of men and 51% of women have as highest education level a primary school certificate) even if, given the age limits (11 to 87 years old), some can be still attending school. About 47% of men and women in the sample do suffer from high level of limitations and 76% of men and 82% of women have chronic diseases, while 48% of men are disabled against 56% of women.

Table 2.1 - Descriptive statistics by gender

	M		F	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Age	66,62	17,77	71,46	14,52
Single	0,17	0,38	0,43	0,50
North West	0,21	0,41	0,22	0,41
North East	0,18	0,38	0,14	0,35
Centre	0,21	0,41	0,23	0,42
South	0,40	0,49	0,42	0,49
Without Educ.	0,09	0,28	0,18	0,38
Primary	0,43	0,50	0,51	0,50
Secondary	0,27	0,45	0,18	0,38
High School	0,17	0,38	0,10	0,30
Tertiary	0,04	0,19	0,03	0,17
High Lim.	0,46	0,50	0,47	0,50
Medium Lim.	0,33	0,47	0,36	0,48
No limitations	0,21	0,41	0,17	0,37
Chronic disease	0,76	0,43	0,82	0,38
Disabled person	0,48	0,50	0,56	0,50
Weakly disability	0,52	0,50	0,44	0,50
Obs.	1154		1967	

Source: our elaboration based on 2011 ISTAT survey data

As shown in Table 2.1, the average age in the sample is particularly high and this seriously limits the number of observations on potentially active people. As Table 2.2 shows the observations on people aged from 15 to 64 are very low (278 males and 339 females) and amongst those in working age the employment rate is rather low, especially for women: the employment rate for women without limitations is 20%, while for men is 72%. If we consider strong limitations, then the employment rate is even lower (less than 10% of women and 32% for men).

We can therefore state that the presence of limitations has a negative effect on individuals' access to work. However the low number of observations of employed people prevents us from carrying out a detailed analysis on the self-perception of employed people about their work.

Table 2.2 - Employment, Activity and Unemployment Rates for people aged 15 to 64 by gender and level of limitations

	No limitations		Medium		High		All	
Variable	M	F	M	F	M	F	M	F
Employed	0,72	0,20	0,52	0,20	0,32	0,10	0,43	0,15
Active	0,72	0,32	0,59	0,27	0,35	0,14	0,47	0,21
Unemployed	0,00	0,12	0,07	0,08	0,03	0,04	0,04	0,06
obs	33	55	77	96	167	186	278	339

Source: our elaboration based on 2011 ISTAT survey data

We focus our analysis on a subsample of individuals aged more than 24 and we analyse the degree of satisfaction in different areas of life-satisfaction (section 4.1) and on social interaction (section 4.2).

Table 2.3 illustrates the distribution of levels of satisfaction among the four domains of life satisfaction analyzed in the first step of analysis. It clearly emerges that while sampled individuals are highly satisfied about relatives relations domain, they are, on average, sufficiently satisfied about friends relations domain, and just little/enough satisfied both in terms of satisfaction about the economic conditions and leisure time.

Table 2.3 Satisfaction levels in four domains of life satisfaction

	Relatives relations		Friends relations		Economic conditions		Leisure time	
Level	Obs.	%	Obs.	%	Obs.	%	Obs.	%
Not at all (= 0)	83	2.83	232	7.94	244	8.35	379	12.98
Little (= 1)	237	8.09	593	20.29	1,426	48.80	1,057	36.20
Sufficiently (= 2)	1,235	42.14	1,297	44.39	1,176	40.25	1,155	39.55
Very (= 3)	1,376	46.95	800	27.38	76	2.60	329	11.27
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Satisfaction	2.332	0.744	1.912	0.887	1.371	0.673	1.491	0.857

Source: our elaboration based on 2011 ISTAT survey data

To measure social interaction we have used a set of indicators on the level of satisfaction expressed by individuals with regards to their interaction with friends and relatives and on a measure of interaction with friends and relatives connected with individual's judgment on whether the quantity of contacts are as much as they wish, a bit less or much less than they wish. All the variables increase with a positive perception on the quantity and quality of social interaction. The degree of satisfaction is normalized to 1 and the level of interaction takes 4 values (1 much less contact than wished, 4 as much as wished).

As shown in Table 2.4 the level of satisfaction on social interaction decreases the high is the level of limitations, with a steeper decrease for the level of satisfaction on the interaction with friends. Also the interaction with friends and relatives is higher the lower is the level of limitations.

Table 2.4 - Level of satisfaction on interaction with friends and relatives and interaction with friends and relatives by level of limitation and gender for individuals aged more than 24.

	Satisfaction friends		Satisfaction relatives		Interaction friends		Interaction relatives	
Level of lim.	M	F	M	F	M	F	M	F
High	0,67	0,63	0,91	0,84	3,37	3,30	3,50	3,34
Medium	0,86	0,72	0,94	0,84	3,66	3,35	3,59	3,46
None	0,91	0,82	0,95	0,92	3,77	3,70	3,66	3,62
Total	0,79	0,69	0,93	0,85	3,55	3,39	3,57	3,43

Source: our elaboration based on 2011 ISTAT survey data

We can observe the reason that the individual provides for not reaching the desired level of interaction with friends and relatives and web use. When without limitations, men are more likely to state the lack of time, while women are more likely to choose health reasons. With limitations, both men and women find in their health status the reason for the lack of interaction.

Table 2.5 - Reasons why individuals do not reach the desired level of interaction

Limitations	None		Medium		Severe		Total	
Reasons	M	F	M	F	M	F	M	F
Lack of income	6,77	1,18	0	3,68	1,05	0,33	1,61	1,6
No time	30,47	16,74	2,08	12,56	6,39	1,85	8,89	7,64
Lack mobility	5,53	2,39	2,92	1,4	0,18	0,61	1,79	1,71
No company	0	3,38	4,07	2,46	2,35	1,44	2,48	1,98
Health	8,31	25,14	31,98	31,64	45,78	39,86	35,98	35,06
Other	48,92	51,17	58,95	48,26	44,25	55,91	49,25	52,01
	100	100	100	100	100	100	100	100

Source: our elaboration based on 2011 ISTAT survey data

3. Methodology

3.1 The determinants of life satisfaction: an ordered probit model approach

The analysis of the various dimensions of self-reported life satisfaction of disabled people is investigated applying a standard approach. Let be Y_k^* indicate a latent, unobserved variable corresponding to satisfaction, where *k* refers, respectively, to the dimensions: relatives relations (R),

friends relations (F), economic situation (E) and leisure time (L). This indicator is assumed to depend linearly on a set of exogenous characteristics X_K, such as:

$$(1)\ Y_k^* = f\left(X_k\right)$$

However, since the latent variable is unobservable, we rely on information from our survey that provides information on an ordered indicator, Y_k. More formally:

$$(2)\ Y_{ik} = \beta_k' X_k + \varepsilon_{ik}$$

where β is a vector of unknown parameters to be estimated, ε_k is the error term and, finally:

$$(3)\ Y_{ik} = \begin{cases} 1 \text{ if } Y_k^* \le \mu_{k1} \\ 2 \text{ if } \mu_{k1} < Y_k^* \le \mu_{k2} \\ 3 \text{ if } \mu_{k2} < Y_k^* \le \mu_{k3} \\ 4 \text{ if } Y_k^* > \mu_{k3} \end{cases}$$

and μ_{k1}, μ_{k2}, μ_{k3}, are a set of threshold parameters to estimate. Under the normality assumption of the residual ε_k, the corresponding model is a standard ordered probit specification.

The set of covariates X includes control variables commonly used in the analysis of individual satisfaction. Specifically, we consider four groups of variables. The first group concerns personal (or idiosyncratic) covariates: age, gender, area of residence and educational level. The second group includes covariates concerning the household structure and support, that is household size, household type and variables controlling the effect of being supported by relatives and friends when necessary. A third group of covariates includes dummy variables controlling for the self-reported evaluation of the adequateness of economic resources and, finally, a fourth group includes covariates concerning disability and health status, i.e., disability (measured in terms of limitations in daily activities), health status and the number of chronic conditions.

The interpretation of the coefficients in the ordered probit model is more complicated than in ordinary regression settings. So, in order to attach meaning to our estimation results, we calculate the average partial effects (APE)[2], that are computed by evaluating the partial effect of a specific

[2] An advantage of using the APE is given by their better stability when compared with estimated parameters to the presence of uncontrolled unobservable factors.

covariate for each individual and averaging the computed effects. It follows that APE for a specific control variable j and the specific satisfaction level (*s*) may be expressed as indicated below:

$$APE_s(X_j) = \frac{1}{n}\sum_{i=1}^{n}[f(\mu_{s-1} - \beta' X_i) - f(\mu_s - \beta' X_i)]\beta_j$$

Because of the cross-sectional nature of our dataset a potentially relevant issue remains unexplored, i.e. the existence of unobservable factors driving the satisfaction of disabled individuals. Even though we are unable to directly handle the unobservable heterogeneity issue, we can test if the k-dimensions of life satisfactions are affected by common unobservable factors.

3.2 The role of unobservable factors: a multivariate probit model approach

To test the presence of unobservable factors that simultaneously affect the various dimensions of life satisfaction, we adopt a multivariate probit model, for which k probit models are simultaneously estimated and the correlation among their respective error terms is estimated[3]. The magnitude and the significance of the correlation terms may reveal the presence of underlying unobservable variables driving the satisfaction outcomes.

To adopt a MV probit model the ordinal responses used in the ordered probit models must be collapsed in binary variables. Specifically, ordinal responses corresponding to "very" and "enough" satisfied are collapsed in "satisfied", while "few" and "not at all" satisfied are collapsed "is not satisfied". The resulting binary response variable (*Z*) takes value one if the latent variable *Z** is greater than zero. It follows that each individual we estimate:

(4) $Z_{iR} = X_R'\gamma_R + \nu_{iR}$ where $Z_{iR} = \begin{cases} 1 \text{ if } Z^*_{iR} > 0 \\ 0 \text{ otherwise} \end{cases}$

(5) $Z_{iF} = X_F'\gamma_F + \nu_{iF}$ where $Z_{iF} = \begin{cases} 1 \text{ if } Z^*_{iF} > 0 \\ 0 \text{ otherwise} \end{cases}$

(6) $Z_{iE} = X_E'\gamma_E + \nu_{iE}$ where $Z_{iE} = \begin{cases} 1 \text{ if } Z^*_{iE} > 0 \\ 0 \text{ otherwise} \end{cases}$

(7) $Z_{iL} = X_L'\gamma_L + \nu_{iL}$ where $Z_{iL} = \begin{cases} 1 \text{ if } Z^*_{iL} > 0 \\ 0 \text{ otherwise} \end{cases}$

[3] We also run an independent Probit model for each dimension analyzed here and compare the estimated coefficients obtained by the MVprobit model (Table A1) with those obtained by the 4 Probit models (Table A2). This allows to assess the differences in the magnitude of the estimated coefficients controlling or not for the presence of unobservable factors.

where X_k is the matrix of covariates identical among individuals, γ_k is a vector of unknown parameters to be estimated and v_k is an error term. Besides:

$$(8)\ E[\nu_{iR}] = E[\nu_{iF}] = E[\nu_{iE}] = E[\nu_{iL}] = 0$$

$$(9)\ Var[\nu_{iR}] = Var[\nu_{iF}] = Var[\nu_{iE}] = Var[\nu_{iL}] = 1$$

$$(10)\quad \begin{aligned} &Cov[\nu_{iR}, \nu_{iF}] = \rho_{RF;} Cov[\nu_{iR}, \nu_{iE}] = \rho_{RE;} Cov[\nu_{iR}, \nu_{iL}] = \rho_{RL} \\ &Cov[\nu_{iF}, \nu_{iE}] = \rho_{FE;} Cov[\nu_{iF}, \nu_{iL}] = \rho_{FL;} Cov[\nu_{iE}, \nu_{iL}] = \rho_{EL} \end{aligned}$$

Assuming normally distributed additive stochastic terms, each individual probability of being satisfied can be modeled as a probit equation in which the probability of being satisfied is explained by exogenous variables that affect individual satisfaction. In order to control for unobservable factors which may determine some correlation in the residuals of the estimated equations and to provide unbiased and consistent estimates, a multivariate (MV) joint probit approach is applied. The model is estimated using a simulated maximum likelihood (SML) estimator (specifically, the Geweke-Hajivassiliou-Keane (GHK) simulator is used) which, under standard conditions is consistent as the number of observations and the number of draws tend to infinity, and is asymptotically equivalent to the true maximum likelihood estimator as the ratio of the square root of the sample size to the number of draws tends to zero (Cappellari and Jenkins, 2003).

3.3 The MIMIC model

Our empirical model on social interaction assumes that this concept can be interpreted as a latent factor, which manifests itself though a set of observed indicators. In this paper we propose to use different available indicators simultaneously to study the level of social interaction for people with disability, through a MIMIC (multiple indicators multiple causes) model.

As this model is an extension to the factor analysis setting, we briefly introduce the notations through the factor analysis model. The MIMIC model, proposed by Joreskog and Goldberger (1975), can be represented as follows:

$$(11)\ y_i = \Lambda f_i + \varepsilon_i \quad \text{Measurement Equations}$$

(12) $f_i = Bxi + \nu_i$ Causal Relationships

with V (ε_i) = ψ and V (ν_i) = $\sigma^2 I_m$, and where f_i(m x1) is a vector of latent factors of individual *i* (m = number of latent dimensions), y_i(k x1) is a vector of observed indicators (k = number of indicators), x_i(nx1) is a vector of latent exogenous variables (n = number of exogenous variables), and Λ and B are corresponding coefficient matrices.

The measurement equations show that latent factors manifest themselves through some observed variables, while the causal relationships show the influence of exogenous variables on the latent factors. The disturbance terms (ε_i and ν_i) are assumed to have zero means and to be not correlated with one another. For each indicator representing the latent construct, a weight (i.e. a factor loading) is estimated. The factor loading represents how much, compared to the others, the indicator counts in explaining the latent variable[4].

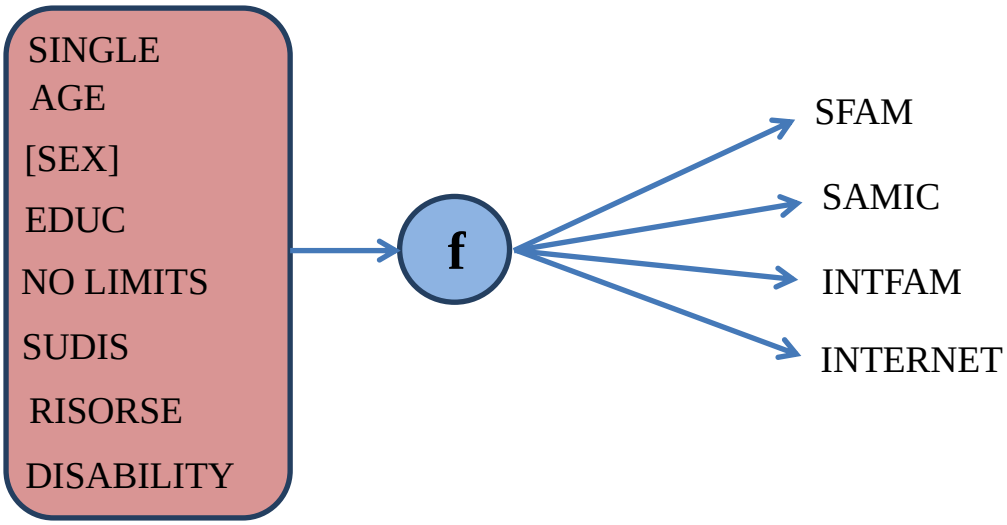
In this paper, the MIMIC model has one latent factor, called 'social interaction', explained by a number of indicators. The indicators included are one variable on the degree of interaction with relatives, two variables on the satisfaction of the individual towards his/her relationship with friends and relatives, and one variable on internet use.

Furthermore, the MIMIC model allows to consider that the latent factor is also caused by exogenous variables (x_i), among which we select variables concerning age, sex[5], civil status, education level, place of residence, degree of limitation in daily activities, the presence of a disability and the evaluation of the economic situation of the family. Figure 3.1 represents the MIMIC model proposed:

[4] For a detailed review of the model, see Aigner et al. (1984) and Zellner (1970). For an application, see Krishnakumar et al. (2011), where the concept of social policy is analysed; Addabbo and Di Tommaso (2011), where are analysed 'senses, imagination and thought' and 'leisure activities, play' for Italian children; and Di Tommaso (2007), where is conceptualized children's well-being for India.

[5] In a variant of the model, we do not insert the variable "sex" in the left hand side (among the exogenous variables), but we estimate the model for men and women separately to disentangle the different effect of the same factors by gender.

Figure 3.1 MIMIC model on social interaction



As showed in Figure 3.1, the right hand side of the figure corresponds to a factor analysis, while the full diagram reports a full MIMIC model with exogenous variables (covariates). Given that the model presents categorical indicators, we use the robust weighted least squares estimator (WLSMV).

4 Results

4.1 The determinants of life satisfaction

Tables from 4.1.1a to 4.1.1d report the average partial effects calculated on the basis of the ordered probit model estimates, while Table 4.1.2 reports the correlation terms across life satisfaction domains estimated on the basis of the MVprobit model[6].

Giving a preliminary look at the determinants of life satisfaction domains analyzed here, what emerges is that variables concerning the household structure and the health and disability status affect more significantly life satisfaction then personal and income variables. Other general findings are the following ones: older disabled people (aged more than 65) are, on average, more satisfied than younger disabled people (consistently with some previous evidence, e.g. Easterlin 2005); disabled people living in the South experience a lower probability of being very satisfied with the relatives relations; being medium-high educated increases the probability of being satisfied in the

[6] When comparing MV probit with standard probit estimations, differences in estimated coefficients are smaller, possibly suggesting that does not controlling for correlated error terms only slightly affect estimations results. For the sack of brevity, estimated coefficients obtained by the ordered probit model as well as the MVprobit model and the four probit models estimated for comparative purposes are not presented here. They are available upon request.

economic conditions domain; having scarce economic resources affects negatively the satisfaction in leisure time but not the satisfaction for relations with relatives and friends; and, finally, being limited in daily activities negatively affects the life satisfaction in the friends relations and leisure time dimensions.

When giving a deeper look at our results, other considerations may be provided. Being an older disabled individual affects positively especially the economic and the relatives relations dimensions. It increases by 10.2% the probability of being sufficiently satisfied in the economic conditions dimension, while the increase is equal to 1.6% for the very satisfied level of economic satisfaction. Conversely, being aged less than 36 increases by 5.7% the probability of being little satisfied with respect to the economic dimension. Being an old disabled individual strongly and positively affects the probability of reaching the highest level of relatives relations satisfaction. We do not find evidence of gender duality in the level of the investigated domains of life satisfaction, with the exception of a negative effect of being male on the probability of being not at all satisfied in the leisure time dimension. As anticipated, the territorial duality, quite surprisingly, is limited to the relatives relations domain; specifically, living in the South decreases by 4.1% the probability of being very satisfied in that dimension, while it increases the probability of being sufficiently satisfied by 2.2% and by 1.3% the probability of being little satisfied. Finally, for what concerns, the idiosyncratic characteristics, we find that higher level of education is associated with higher levels of satisfaction in the economic conditions domain. For example, being highly educated increases by 12.3% the probability of being sufficiently satisfied in that dimension, while it decreases the probability of being little satisfied by 11% when compared with low educational levels. This finding is possibly related to the standard positive association of higher educational attainments with higher income levels.

Focusing on the average partial effects related to the household structure variables, we find that the household size is relevant to increase the level of satisfaction in all the dimensions analyzed here, except that for the leisure time domain for which it is irrelevant. The positive effect is particularly strong with reference to the relatives relations domain, for which the increase by one unit of the household size increases by 4.4% the probability of being very satisfied in the relatives relations dimension. For what concerns the household type, living together to other household members increases the level of satisfaction in the relatives and friends relations dimensions, when compared to the situation of individuals living alone (our base-category). In this context, some specificity emerges. For example, living in a couple without children or being a mother single-parent increase the probability of being very satisfied with the relatives relations (respectively by 9.2% and 10.7%).

Mothers single-parent are more likely to be little satisfied with the economic conditions (+3.2% with respect to the base-category), while they are less likely to be sufficiently and very satisfied in the economic dimension (respectively, -4.9% and -0.8%). Conversely, being fathers single-parent decrease the probability of being not at all satisfied (-3.9%) and increase the probability of being sufficiently satisfied (+9.9%). The predicted probability of single mothers of being very satisfied with the economic condition evaluating all the other variables at their mean is 1% against 5% for single fathers. Accordingly single mothers predicted probability of having a little level of satisfaction in this dimension is 54% against 39% for single fathers, and the predicted probability of not being satisfied at all is 9% for single mothers and 3% for single fathers. This indicates the existence of a gender duality issue in the satisfaction with economic conditions domain for single-parents.

Couples, with and without children, as well as, fathers single-parent are more likely to be very satisfied when compared with singles with respect to the friends relations dimension (+5.4% for the couples with children, +7% for the couples without children and +15.7% for fathers single-parent). This finding identifies a first occurrence of gender difference: it seems that mothers single-parent are more likely to be satisfied with the relatives relations, while fathers single-parent are more likely to be satisfied with the friends relations. Another difference emerges with respect to the satisfaction with the economic conditions. Mothers single-parent are more likely to be little satisfied with the economic conditions (+3.2% with respect to the base-category), while they are less likely to be sufficiently and very satisfied in the economic dimension (respectively, -4.9% and -0.8%). Conversely, being fathers single-parent decrease the probability of being not at all satisfied (-3.9%) and increase the probability of being sufficiently satisfied (+9.9%). This indicates the existence of a gender duality issue in the satisfaction with economic conditions domain for single-parents. Finally, the household type seems to be irrelevant with respect to the satisfaction with leisure time. Variables measuring the effect of being supported in case of necessity, positively affect life satisfaction of disabled people. The effect seems to be particularly strong with respect to the satisfaction with the relatives and friends relations, when compared to satisfaction with leisure time and, especially, economic conditions.

Looking at the dummy variables approximating the income situation, our estimates show their irrelevance in affecting the satisfaction with relatives and friends relations. On the contrary, as expected, we find some evidence of a negative impact on satisfaction with leisure time in case of scarce economic resources.

Finally, we present average partial effects concerning health and disability status. Specifically, we investigate the impact on life satisfaction controlling fro dummy variables approximating the health

status, the disability status (measured in terms of limitations in daily activities) and a variable controlling for the number of chronic diseases. As expected a bad health status decreases the probability of being very satisfied with all dimensions of life satisfaction analyzed here. The negative effect is increasing with the seriousness of health conditions and tends to affect strongly the dimensions concerning the relationships with relatives and friends. Conversely, being limited in daily activities negatively affects the satisfaction with leisure time and friends relations (just in case of strong limitations), while it does not affect other dimensions. Finally, the probability of being satisfied in all the dimensions analyzed here is decreasing with the number of chronic diseases.

[Tables 4.1.1a/b/c/d about here]

Table 4.1.2 presents the correlation among the error terms of the analyzed satisfaction dimensions. On the one side we find that whatever couple of dimensions (and model specification) is considered we found that correlation exists and it is significant at 1% level. On the other side, the magnitude of the correlations diverges across couple of dimensions and tends to be weak or moderate. It is moderate for the dimension strictly related with social interactions like relatives and friends relations (0.379), while it is weak for other couples (from 0.287 for the E-L combination to 0.113 for the R-L combination). This is suggestive that unobservable factors commonly affect the satisfaction levels of various dimensions analyzed here, even though this effect is relatively small in magnitude. Among unobserved common factors, we could include personality traits, as well as other specific cognitive and non-cognitive skills that usually drive life outcomes of individuals. This could be explicative, for example, of the smaller correlation between relatives relations and economic situation and relatives relations and leisure time, possibly because personality traits involved in those respective dimensions are less connected than those involved in the former case. Moreover, the joint LR-test of zero correlation among different dimensions is strongly rejected (Table 4.1.3). Finally, a possible further consequence of the relatively small correlation among unobserved terms is the restrained differences among estimated coefficients of the MVprobit (Table A1) and those of the Probit models (Table A2). This is quite reassuring for the reliability of our estimates. In fact, even though unobservable heterogeneity exists, the potential bias deriving from a fail in controlling for it is, all in all, quite small.

Table 4.1.2 Correlation among error terms

Dimension	Relatives	Friends	Economic
Friends	**0.379**		
	0.037		
Economic	**0.120**	**0.162**	
	0.037	*0.032*	
Leisure	**0.113**	**0.286**	**0.287**
	0.036	*0.030*	*0.029*

Source: our elaboration based on 2011 ISTAT survey data

Table 4.1.3. LR-tests for joint correlation among error-terms

ρRF = ρRE = ρRL = ρFE = ρFL = ρEL = 0	chi2(6)	
	298.97	***

Source: our elaboration based on 2011 ISTAT survey data

4.2 Social interaction and its determinants

Social interaction is a relevant, though not directly observed, dimension of individual well-being. We have therefore tried to measure it as a latent variable by estimating a MIMIC model, described in Section 3.2, where the indicators of the latent variable are:

- level of satisfaction on the interaction with relatives (categorical variable with 4 categories);
- level of satisfaction on the interaction with friends (categorical variable with 4 categories);
- interaction with relatives (dummy variable)[7];
- frequency of internet use and satisfaction on that (categorical variable with 3 categories).

The level of the indicators increases with a positive perception on the quality/quantity of social interaction.

Amongst the factors that can affect its conversion into observable functionings or its very development we include:

- personal characteristics: sex, age, level of education (measured by years of education), degree of limitations[8], presence of disabilities;
- family characteristics: perception on the economic condition of the family;
- area of residence: South with respect to Centre/North;
- living arrangement: whether he/she is single with respect to other living arrangements.

[7] Due to the strong correlation (0.93) between the two indicators on the degree of interaction with friends and on the degree of interaction with relatives, we introduce in the model only one of them (i.e. interaction with relatives).

[8] Higher values of this variable indicate less limits.

The model has been estimated on the whole sample of people aged over 24. The fit of the model is measured by CFI, TLI and RMSEA and can be considered satisfying[9]. The indicators chosen for explaining the latent factor are all significant. The one that has the highest weight in the measurement of the unobserved dimension of social interaction is the degree of interaction with relatives (INTFAM) followed by the frequency and satisfaction on the use of internet (INTERNET) and by the level of satisfaction on interaction with friends (SAMIC) and with relatives (SFAM).
Turning to the effect of individual conversion factors we can see how age decreases social interaction and how women have a low level of social interaction. Education does not affect significantly social interaction. In addition, consistently with the literature, the degree of limitations of the individual does significantly affect social interaction with an effect that increases with the severity of limitations. Similarly, the presence of a disability contributes negatively to the level of social interaction. Turning to family type, being single reduces social interaction, while living in the South/Islands of Italy does not affect it. A higher level of perceived family monetary well-being has a positive effect on individual's social interaction. This is consistent with the positive effect of income on life satisfaction through its effect on social participation found by Rijken & Groenewegen (2008) in their applied analysis on 1,265 patients diagnosed with one or more somatic chronic disease in the Netherlands.

Table 4.2.1 - Estimation of MIMIC on social interaction whole sample (aged over 24)

TESTS OF MODEL FIT

CFI/TLI

CFI	0.891
TLI	0.855
Number of Free Parameters	12

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.063

[9] To assess the fit of the model, we look at the Root Mean Squared Error of Approximation (RMSEA), which is an absolute fit index. According to Daire Hooper and Mullen (2008), RMSEA cut-off points have been reduced during years. At the beginning only values higher than 0.10 indicated poor fit, after that RMSEA between 0.08 and 0.10 was considered a mediocre fit, while below 0.08 a good fit. However, more recently, a limit of 0.06 or 0.07 seems to be the general cut-off accepted among experts.
In contrast, incremental fit indices, such as the Tucker-Lewis Index (TLI) and the Bentler's Comparative Fit Index (CFI) compare a target model with a restricted, nested and baseline (i.e. with all the observed variables uncorrelated one another) one. For both these indices, values next to 1 are preferable.
For an overview of the cut-off criteria for different fit indices, see Hu and Bentler (1999).

MODEL RESULTS (Num. Obs.: 2543)

	Estimates	S.E.	Est./S.E.	Std	StdYX
F1 BY					
SAMIC	1.000	0.000	0.000	0.795	0.622
SFAM	0.808	0.086	9.345	0.642	0.540
INTFAM	2.238	0.278	8.041	1.779	0.872
INTERNET	1.333	0.117	11.394	1.059	0.727
F1 ON					
SEX	-0.181	0.042	-4.289	-0.227	-0.110
SINGLE	-0.105	0.042	-2.494	-0.132	-0.062
AGE	-0.009	0.002	-5.283	-0.011	-0.133
SUDIS	0.002	0.038	0.046	0.002	0.001
RISORSE	0.234	0.041	5.743	0.294	0.146
EDUC	0.006	0.005	1.279	0.008	0.031
DISABILITY	-0.251	0.045	-5.604	-0.315	-0.157
NO LIMITS	0.236	0.033	7.232	0.297	0.222

To corroborate our results, we estimate the model by gender to take into account the different impact of the same conversion factors on social interaction on men and women (Table 4.2.2).

Again according to CFI, TLI and RMSEA tests the model shows a good fit. For both men and women the interaction with relatives has the highest weight in the measurement of social interaction. However satisfaction in the interaction with friends has a higher weight for men than for women, whereas satisfaction in the interaction with relatives has a higher weight for women.

Having as much as wished level of interaction via web is a relevant dimension in the measurement of social interaction.

Comparing the effect of the same variables on social interaction by gender we can see that being single significantly reduces social interaction only for women. Age reduces social interaction for both men and women whereas being more educated significantly increases social interaction only for men having a not significant negative effect for women.

The area of residence does not significantly affect social interaction that increases instead both for men and for women the higher is the perceived level of monetary well-being of the family (RISORSE). The latter effect is higher for women than for men. Finally, both men and women's social interaction is negatively affected by limitations and by disability. The latter effect being more relevant for men than for women.

Table 4.2.2 - Social interaction by gender results of MIMIC model on individuals aged over 24

TESTS OF MODEL FIT

CFI/TLI

CFI	0.905
TLI	0.864

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.065

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
Group MALE (Num. Obs.: 966)					
F1 BY					
SAMIC	1.000	0.000	0.000	0.920	0.677
SFAM	0.586	0.125	4.689	0.539	0.474
INTFAM	1.783	0.337	5.293	1.641	0.854
INTERNET	1.070	0.143	7.475	0.984	0.701
F1 ON					
SINGLE	-0.072	0.091	-0.794	-0.079	-0.030
AGE	-0.013	0.003	-4.412	-0.015	-0.190
SUDIS	-0.081	0.074	-1.101	-0.089	-0.044
RISORSE	0.147	0.079	1.872	0.160	0.078
EDUC	0.022	0.009	2.417	0.024	0.094
DISABILITY	-0.460	0.095	-4.862	-0.500	-0.249
NO LIMITS	0.298	0.063	4.698	0.324	0.246
Group FEMALE (Num. Obs.: 1577)					
F1 BY					
SAMIC	1.000	0.000	0.000	1.099	0.587
SFAM	0.586	0.125	4.689	0.643	0.556
INTFAM	1.783	0.337	5.293	1.959	0.885
INTERNET	1.070	0.143	7.475	1.175	0.729
F1 ON					
SINGLE	-0.193	0.078	-2.477	-0.176	-0.087
AGE	-0.010	0.003	-2.779	-0.009	-0.097
SUDIS	0.054	0.067	0.797	0.049	0.024
RISORSE	0.402	0.095	4.237	0.366	0.183
EDUC	-0.001	0.009	-0.112	-0.001	-0.004
DISABILITY	-0.247	0.086	-2.870	-0.224	-0.111
NO LIMITS	0.327	0.077	4.243	0.297	0.219

5. Conclusions

This paper analyzes life satisfaction of disabled people in Italy, focusing on people with functional limitations and health problems who live in households, as provided by the 2011 ISTAT survey.

The analysis is twofold. In a first step we, first, focus on the predictors of four specific domains of life satisfaction of sampled individuals: satisfaction with relatives relations, friends relations, economic conditions and leisure time; and second, we analyze the presence of unobservable factors

jointly affecting the four satisfaction domains. In a second step, we analyze the relevance in individual well-being of social interaction, applying a MIMIC model which treats it as a latent factor manifesting itself through a number of observed indicators and adding also exogenous variables.

Evidence emerged from the calculated average partial effects based on ordered probit models, tend to confirm higher level of life satisfaction for older disabled people, as well as some effects from being medium-highly educated and slightly regional disparities. Relevant finding concerns the positive role of being supported on many domains of life satisfaction and gender duality emerging in the context of household structures. Health status is confirmed to be a relevant predictor of life satisfaction, while being severely limited in daily activities negatively affects the satisfaction with leisure time. Finally, according to the MV probit analysis, we find evidence that unobservable factors commonly affect various domains of life satisfaction analyzed, even though the magnitude could be considered moderate. This could be suggestive of a role played by unobservable factors, like personality traits or other specific cognitive and non-cognitive skills that usually drive life outcomes of individuals.

For what concerns the second step of our analysis, social interaction is interpreted as a crucial dimension of individual well-being. For measuring this dimension, we use observable indicators on the degree of interaction with friends and relatives and the use of web by estimating a MIMIC model. Results show that women have a lower achievement in social interaction and that they are more negatively affected if single or if they live in a family with a perceived lower level of economic resources. Both men and women's social interaction is lower with limitations and disability though the effect of disability is much more relevant for men than for women.

In terms of policies dedicated to disabled people the evidence shown on social interaction would suggest to invest also in policies able to increase their level of social interaction. Given the increasing number of elderly single women and the higher likelihood of living in poverty faced by elderly women in Italy, policies dedicated to increase their income sustainability can have a positive effect on social interaction, which is a crucial dimension of well-being that they are more likely to be deprived of.

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Table 4.1.1a Average partial effects based on ordered probit model estimates: NOT AT ALL SATISFIED

		Relatives relations			Friends relations			Economic conditions			Leisure time		
		Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Personal	Aged less than 36	-0.008	0.009		-0.012	0.021		0.057	0.047		-0.038	0.026	
	Aged 36-50	base-category											
	Aged 51-65	-0.005	0.006		-0.019	0.012	*	-0.015	0.015		-0.041	0.017	**
	Aged more than 65	-0.018	0.006	***	-0.024	0.013	*	-0.055	0.015	***	-0.036	0.020	*
	Male	-0.001	0.003		0.002	0.006		-0.009	0.006		-0.015	0.008	*
	North-West	-0.003	0.004		-0.006	0.009		-0.014	0.009		0.008	0.014	
	North-East	0.000	0.004		0.004	0.009		-0.009	0.009		-0.018	0.012	
	Centre	base-category											
	South-Islands	0.006	0.004	*	0.003	0.007		0.006	0.009		0.001	0.010	
	Low educated	base-category											
	Medium educated	0.000	0.004		0.000	0.009		-0.034	0.007	***	-0.009	0.013	
	Highly educated	0.004	0.008		0.009	0.017		-0.046	0.011	***	-0.021	0.022	
Household structure	Household size	-0.007	0.002	***	-0.006	0.003	*	-0.016	0.004	***	-0.006	0.005	
	Single	base-category											
	Couple with children	-0.007	0.004	*	-0.022	0.009	**	0.020	0.015		0.014	0.018	
	Couple without children	-0.014	0.003	***	-0.031	0.006	***	0.004	0.008		-0.005	0.010	
	Father single-parent	-0.015	0.007	**	-0.047	0.014	***	-0.039	0.020	*	0.007	0.037	
	Mother single-parent	-0.013	0.004	***	-0.004	0.012		0.025	0.016		0.001	0.017	
	Supported by familiars	-0.004	0.002	*	-0.060	0.004	***	-0.027	0.005	***	-0.039	0.007	***
	Supported by friends	-0.020	0.002	***	-0.022	0.007	***	-0.031	0.007	***	-0.028	0.011	***
Income	Very good economic resources	base-category											
	Adequate economic resources	0.000	0.011		0.031	0.031					0.023	0.042	
	Scarce economic resources	0.005	0.013		0.032	0.032					0.072	0.050	
	Insufficient economic resources	0.001	0.013		0.029	0.035					0.060	0.053	
Health and Disability	Good health	base-category											
	Fair health	0.011	0.006	*	0.020	0.012	*	0.027	0.014	**	-0.002	0.014	
	Bad health	0.026	0.009	***	0.049	0.016	***	0.065	0.019	***	0.052	0.020	***
	No limited in daily activities	base-category											
	Limited in daily activities	-0.001	0.004		0.008	0.009		-0.010	0.008		0.067	0.016	***
	Seriously limited in daily activities	-0.003	0.004		0.037	0.012	***	-0.009	0.009		0.129	0.021	***
	Number of chronic diseases	0.002	0.001	***	0.006	0.001	***	0.010	0.002	***	0.009	0.002	***

Table 4.1.1b Average partial effects based on ordered probit model estimates: LITTLE SATISFIED

		Relatives relations			Friends relations			Economic conditions			Leisure time		
		Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Personal	Aged less than 36	-0.017	0.020		-0.017	0.030		0.057	0.028	**	-0.041	0.035	
	Aged 36-50	base-category											
	Aged 51-65	-0.010	0.012		-0.027	0.018		-0.025	0.029		-0.042	0.022	*
	Aged more than 65	-0.033	0.012	***	-0.028	0.017	*	-0.064	0.027	**	-0.027	0.018	
	Male	-0.001	0.005		0.003	0.008		-0.014	0.011		-0.013	0.008	
	North-West	-0.007	0.008		-0.008	0.012		-0.024	0.017		0.006	0.011	
	North-East	-0.001	0.009		0.005	0.012		-0.014	0.017		-0.017	0.012	
	Centre	base-category											
	South-Islands	0.013	0.007	*	0.004	0.009		0.010	0.013		0.001	0.009	
	Low educated	base-category											
	Medium educated	0.000	0.008		0.000	0.011		-0.068	0.019	***	-0.009	0.012	
	Highly educated	0.009	0.015		0.011	0.019		-0.110	0.039	***	-0.020	0.024	
Household structure	Household size	-0.014	0.003	***	-0.008	0.004	*	-0.025	0.006	***	-0.005	0.004	
	Single	base-category											
	Couple with children	-0.015	0.009		-0.031	0.015	**	0.028	0.017		0.012	0.014	
	Couple without children	-0.028	0.006	***	-0.040	0.009	***	0.007	0.012		-0.004	0.009	
	Father single-parent	-0.035	0.018	*	-0.081	0.034	**	-0.085	0.062		0.006	0.030	
	Mother single-parent	-0.030	0.009	***	-0.005	0.015		0.032	0.017	*	0.001	0.014	
	Supported by familiars	-0.008	0.005	*	-0.117	0.006	***	-0.052	0.012	***	-0.042	0.009	***
	Supported by friends	-0.051	0.005	***	-0.032	0.011	***	-0.065	0.019	***	-0.028	0.013	**
Income	Very good economic resources	base-category											
	Adequate economic resources	0.001	0.022		0.034	0.030					0.018	0.028	
	Scarce economic resources	0.009	0.023		0.035	0.030					0.042	0.018	**
	Insufficient economic resources	0.003	0.025		0.032	0.034					0.037	0.023	*
Health and Disability	Good health	base-category											
	Fair health	0.020	0.010	**	0.023	0.013	*	0.034	0.014	**	-0.001	0.012	
	Bad health	0.043	0.013	***	0.050	0.013	***	0.061	0.010	***	0.034	0.009	***
	No limited in daily activities	base-category											
	Limited in daily activities	-0.002	0.008		0.010	0.011		-0.018	0.015		0.040	0.006	***
	Seriously limited in daily activities	-0.006	0.008		0.040	0.011	***	-0.015	0.017		0.054	0.004	***
	Number of chronic diseases	0.004	0.001	***	0.007	0.002	***	0.016	0.003	***	0.008	0.002	***

Table 4.1.1c Average partial effects based on ordered probit model estimates: SUFFICIENTLY SATISFIED

		Relatives relations			Friends relations			Economic conditions			Leisure time		
		Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Personal	Aged less than 36	-0.034	0.046		0.000	0.004		-0.100	0.068		0.037	0.024	
	Aged 36-50	base-category											
	Aged 51-65	-0.018	0.023		-0.001	0.003		0.033	0.036		0.040	0.016	**
	Aged more than 65	-0.047	0.022	**	0.004	0.001	***	0.102	0.034	***	0.035	0.019	*
	Male	-0.002	0.009		0.000	0.001		0.019	0.015		0.014	0.008	*
	North-West	-0.012	0.015		0.000	0.000		0.032	0.021		-0.008	0.013	
	North-East	-0.001	0.015		0.000	0.001		0.019	0.022		0.018	0.012	
	Centre	base-category											
	South-Islands	0.022	0.011	**	0.000	0.001		-0.014	0.018		-0.001	0.010	
	Low educated	base-category											
	Medium educated	0.000	0.014		0.000	0.001		0.083	0.020	***	0.009	0.012	
	Highly educated	0.014	0.022		-0.001	0.003		0.123	0.035	***	0.020	0.021	
Household structure	Household size	-0.024	0.005	***	0.000	0.000		0.035	0.008	***	0.006	0.005	
	Single	base-category											
	Couple with children	-0.028	0.020		-0.002	0.003		-0.041	0.028		-0.014	0.018	
	Couple without children	-0.050	0.012	***	0.001	0.002		-0.009	0.016		0.005	0.009	
	Father single-parent	-0.082	0.057		-0.029	0.028		0.099	0.060	*	-0.007	0.036	
	Mother single-parent	-0.064	0.025	***	0.000	0.000		-0.049	0.030	*	-0.001	0.016	
	Supported by familiars	-0.014	0.009		-0.072	0.007	***	0.064	0.013	***	0.037	0.006	***
	Supported by friends	-0.139	0.017	***	-0.004	0.003		0.077	0.020	***	0.027	0.010	***
Income	Very good economic resources	base-category											
	Adequate economic resources	0.001	0.036		-0.008	0.013					-0.023	0.041	
	Scarce economic resources	0.015	0.034		-0.009	0.014					-0.069	0.045	
	Insufficient economic resources	0.004	0.041		-0.008	0.014					-0.057	0.049	
Health and Disability	Good health	base-category											
	Fair health	0.029	0.012	**	-0.004	0.004		-0.052	0.024	**	0.002	0.014	
	Bad health	0.051	0.009	***	-0.017	0.009	*	-0.111	0.026	***	-0.050	0.019	***
	No limited in daily activities	base-category											
	Limited in daily activities	-0.003	0.013		-0.001	0.002		0.024	0.019		-0.063	0.014	***
	Seriously limited in daily activities	-0.010	0.015		-0.011	0.006	*	0.020	0.021		-0.117	0.016	***
	Number of chronic diseases	0.007	0.002	***	0.000	0.000		-0.022	0.004	***	-0.009	0.002	***

Table 4.1.1d Average partial effects based on ordered probit model estimates: VERY SATISFIED

		Relatives relations			Friends relations			Economic conditions			Leisure time		
		Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.	Coef.	Std. Err.	Sign.
Personal	Aged less than 36	0.059	0.076		0.030	0.054		-0.014	0.007	**	0.042	0.037	
	Aged 36-50	base-category											
	Aged 51-65	0.033	0.040		0.047	0.033		0.007	0.008		0.044	0.023	*
	Aged more than 65	0.097	0.039	**	0.048	0.030		0.016	0.007	**	0.029	0.019	
	Male	0.004	0.018		-0.005	0.013		0.003	0.003		0.013	0.008	
	North-West	0.023	0.027		0.014	0.020		0.006	0.005		-0.007	0.011	
	North-East	0.002	0.028		-0.008	0.020		0.004	0.004		0.017	0.013	
	Centre	base-category											
	South-Islands	-0.041	0.022	*	-0.007	0.016		-0.002	0.003		-0.001	0.009	
	Low educated	base-category											
	Medium educated	0.000	0.026		0.001	0.019		0.019	0.006	***	0.009	0.012	
	Highly educated	-0.026	0.045		-0.019	0.033		0.034	0.015	**	0.020	0.025	
Household structure	Household size	0.044	0.010	***	0.013	0.007	*	0.006	0.002	***	0.005	0.005	
	Single	base-category											
	Couple with children	0.050	0.033		0.054	0.027	**	-0.007	0.004	*	-0.012	0.014	
	Couple without children	0.092	0.020	***	0.070	0.016	***	-0.002	0.003		0.004	0.009	
	Father single-parent	0.132	0.082		0.157	0.076	**	0.025	0.022		-0.006	0.030	
	Mother single-parent	0.107	0.037	***	0.008	0.027		-0.008	0.004	*	-0.001	0.015	
	Supported by familiars	0.026	0.017		0.250	0.013	***	0.015	0.004	***	0.044	0.009	***
	Supported by friends	0.210	0.023	***	0.058	0.021	***	0.019	0.006	***	0.029	0.013	**
Income	Very good economic resources	base-category											
	Adequate economic resources	-0.003	0.069		-0.057	0.048					-0.018	0.029	
	Scarce economic resources	-0.029	0.069		-0.059	0.048					-0.046	0.023	**
	Insufficient economic resources	-0.009	0.079		-0.053	0.055					-0.040	0.027	
Health and Disability	Good health	base-category											
	Fair health	-0.061	0.028	**	-0.039	0.020	*	-0.008	0.003	**	0.001	0.013	
	Bad health	-0.120	0.031	***	-0.082	0.020	***	-0.015	0.003	***	-0.036	0.011	***
	No limited in daily activities	base-category											
	Limited in daily activities	0.006	0.025		-0.016	0.018		0.005	0.004		-0.043	0.008	***
	Seriously limited in daily activities	0.019	0.028		-0.065	0.018	***	0.004	0.005		-0.066	0.007	***
	Number of chronic diseases	-0.013	0.004	***	-0.012	0.003	***	-0.004	0.001	***	-0.008	0.002	***