UNIVERSITAT ROVIRA I VIRGILI
DEPARTAMENT D'ECONOMIA

CREIP
CENTRE DE RECERCA EN ECONOMIA INDUSTRIAL I ECONOMIA PÚBLICA

WORKING PAPERS

Col·lecció "DOCUMENTS DE TREBALL DEL DEPARTAMENT D'ECONOMIA - CREIP"

Disentangling the link between health and social capital: A comparison of immigrant and native-born populations in Spain

Alexandrina Stoyanova
Luís Díaz Serrano

Document de treball n.31- 2013

DEPARTAMENT D'ECONOMIA – CREIP
Facultat d'Economia i Empresa

UNIVERSITAT ROVIRA I VIRGILI

DEPARTAMENT D'ECONOMIA

creip
CENTRE DE RECERCA EN ECONOMIA INDUSTRIAL I ECONOMIA PÚBLICA

Edita:

Departament d'Economia
www.fcee.urv.es/departaments/economia/public_html/index.html
Universitat Rovira i Virgili
Facultat d'Economia i Empresa
Avgda. de la Universitat, 1
43204 Reus
Tel.: +34 977 759 811
Fax: +34 977 300 661
Email: sde@urv.cat

CREIP
www.urv.cat/creip
Universitat Rovira i Virgili
Departament d'Economia
Avgda. de la Universitat, 1
43204 Reus
Tel.: +34 977 558 936
Email: creip@urv.cat

Adreçar comentaris al Departament d'Economia / CREIP

Dipòsit Legal: T - 1511 - 2013

ISSN edició en paper: 1576 - 3382
ISSN edició electrònica: 1988 - 0820

DEPARTAMENT D'ECONOMIA – CREIP
Facultat d'Economia i Empresa

Disentangling the link between health and social capital: A comparison of immigrant and native-born populations in Spain

Alexandrina Stoyanova (Universitat de Barcelona)
L. Diaz-Serrano (Universidad Rovira i Virgili)

Abstract: An increasing body of research has pointed to the relevance of social capital in studying a great variety of socio-economic phenomena, ranging from economics growth and development to educational attainment and public health. Conceptually, our paper is framed within the debates about the possible links between health and social capital, on one hand, and within the hypotheses regarding the importance of social and community networks in all stages of the dynamics of international migration, on the other hand. Our primary objective is to explore the ways social relations contribute to health differences between the immigrants and the native-born population of Spain. We also try to reveal differences in the nature of the social networks of foreign-born, as compared to that of the native-born persons.

The empirical analysis is based on an individual-level data coming from the 2006 Spanish Health Survey, which contains a representative sample of the immigrant population. To assess the relationship between various health indicators (self-assessed health, chronic conditions and long-term illness) and social capital, controlling for other covariates, we estimate multilevel models separately for the two population groups of interest. In the estimates we distinguish between individual and community-level social capital. While the Health Survey contains information that allows us to define individual social capital measures, the collective indicators come from other official sources. In particular, for the subsample of immigrants, we proxy community-level networks and relationships by variables contained in the Spanish National Survey of Immigrants 2007. The results obtained so far point to the relevance of social capital as a covariate in the health equation, although, the significance varies according to the specific health indicator used. Additionally, and contrary to what is expected, immigrants' social networks seem to be inferior to those of the native-born population in many aspects; and they also affect immigrant's health to a lesser extent. Policy implications of the findings are discussed.

Keywords: health status, social capital, immigration, Spain

Contacting author: Luis Diaz-Serrano. Department of Economics, Universitat Rovira i Virgili, Avinguda de la Universitat 1, 43204 Reus, Spain. Email: luis.diaz@urv.cat
We acknowledge the financial support from the Spanish Ministry of Economy and Competitiveness (grant *#ECO2010-20829).*

INTRODUCTION

There is an increasing body of research on the relationship between social capital and health. Social capital is theoretically hypothesised to exert a beneficial effect on health. Empirical evidence supports the theoretical considerations and reveals that higher stock of social capital is associated with better physical and mental health and lower mortality. Nevertheless, discrepancies are discerned by studies on different populations (Kawachi et al., 1999; Putnam, 2000; Veenstra, 2000), and population groups/communities (Baron-Epel et al., 2007). Another line of research is the one linking social capital to health-related behaviours. Studies show that social capital promotes/encourages better health habits, such as healthy diet (Poortinga, 2006) and regular exercise (Lindström et al, 2001 and 2003; Stahl, 2001, Addy et al, 2004, Haughton McNeill et al, 2006; Mummery et al, 2007), and limits the influence of risk-related factors (conducts) (tobacco use (Lindström et al, 2003; Brown et al, 2006, etc.); alcohol consumption (Poortingga, 2006; Weitzman and Chen, 2005) illicit drug taking (Lundborg, 2005). Lastly, there are also findings pointing to the adverse consequences (negative externalities) some social networks may exert on the community as a whole, but especially on vulnerable subgroups of the population, such as immigrants, adolescents, ethnic and religious minorities, etc. (Maycock and Howat, 2007; Rose, 2000; Storr et al, 2004; Takashi and Magalong, 2008).

There exists also a growing literature linking health and immigration, on the one hand, and immigration and social capital, on the other hand. Studies regarding health and immigration mainly focus on the comparison in health between immigrants and native-born (Antecol and Bedard, 2006; Biddle, Kennedy and McDonald, 2007; McDonald and Kennedy, 2005), the access of immigrants to the health care system (Devillanonova, 2008) or the degree of health insurance coverage (Borjas, 2003). The main body of the literature regarding social capital and immigration mainly focus on the role of social networks and ties in the integration of immigrants (Massey, 1987; Borjas and Bronars, 1991; Polloni et al. 2001; Della Giusta and Kambhampati, 2006). However, the link between these three issues, i.e. health, immigration and social capital, remains still practically unexplored.

Behind the empirical discrepancies about the true relationship between health and social capital stays the ongoing debate regarding both the measurement of social capital and the mechanisms by which social interactions translate into health benefits. A detailed description and comprehensive discussion of the principal concepts used in the scarce theoretical and the extensive empirical literature can be found in Macinko and Starfield (2001) and Islam et al (2006).

Some authors still dissent over whether social capital is an individual characteristic or a community attribute, and should be considered a public good (Glaeser et al, 2000; Kawachi et al, 2004; Yang, 2007)). Individual social capital can be viewed as a person's social characteristics (Durlauf, 2002), and is measured by the level of trust, membership in social networks, or participation in different community groups or activities, while community social capital is defined as the extent and density of trust, cooperation, and associational links and activity within a given population. Some recent studies (Anderson et al, 2004), however, offer evidence to support the conceptualization of social capital as both individual and collective attribute.

Irrespective of its nature (individual or collective, or both), social capital can be disaggregated into two main components: structural (objective and measurable) and cognitive (subjective and intangible) (harpham et al, 2002; Grootaert and van Bastelaer, 2001). While structural dimension refers to membership in formal voluntary organizations and participation in informal networks, the cognitive aspects of social capital refer to individual perceptions of support, trust, reciprocity and cooperation. The two components are likely to interact. Cognitive components of social capital help shape its structural framework, while the structural social capital can form or transform the cognitive one. In other words, cognitive social capital serves as the underlying base and foundation for structural social capital components, while the presence of structural components may serve to reinforce cognitive aspects (Cullen and Whiteford, 2001).

Lastly, within structural framework a distinction is also made between horizontal (bonding and bridging) and vertical (linking) social capital (Szreter and Woolcock, 2004; Putnam, 2000; Woolcock, 1998). Vertical relations occur among individuals in different hierarchic positions, while horizontal relationships arise among equals (in terms of power or social status). According to Putnam (2000), bonding social capital

creates benefits for the members of homogeneous structures such as families, neighbours, close friends or workmates, while bridging social capital embraces weak ties among individuals belonging to different socio-demographic groups (ethnical origin, occupational class, etc.)

Our primary objective is to explore the ways social relations contribute to health differences between the immigrants and the native-born population of Spain. We also try to reveal differences in the nature of the social networks of foreign-born, as compared to that of the native-born persons.

The paper is organised as follows. The following section presents the theoretical (conceptual) framework. The data and the empirical strategy are described in section three. The estimation results are shown in section four. The last section discusses the main findings and concludes.

THEORETICAL (CONCEPTUAL) FRAMEWORK

The conceptual framework behind our analysis is the spirit of the simple model proposed by Becker and Murphy (2000), and recently extended to better capture the true relationship between health and social capital by Islam et al (2008) and Folland (2008). Becker and Murphy (2000) address the missing "social environment" in the neoclassical economic analysis by adding social capital, S, as an argument in the standard utility function. So that

$$U = U(x, y, S),$$

where the variable S represents social influences on utility through the stock of social capital. The fact that social environment enters the utility function directly means that changes in the level of social capital increase or decrease the level of utility. The fundamental assumption of the model is that social capital is complement to x, that is, an increase in S raises the marginal utility from x. If x is health, the complementarity would mean that an increase in the intensity and strengths of social networks would enhance the benefit from becoming and staying healthy (Folland, 2008). In some cases,

Becker and Murphy (2000) point out, it might be more realistic to assume that x, y, and S exert an indirect influence on utility. That is, these enter the household production function that produces commodities, which are now the argument of the utility function. The later approach can be adapted to the health production model developed by Grossman (1972).

Let the individual's utility function, U, be a function of the expected health status of individual i with nationality j, H_{ij}, and the expenditures on other goods and services, C_{ij}. So that

$$U_{ij} = U(H_{ij}, C_{ij}).$$

As in Folland (2008), we assume that health production function is $H_{ij} = H(HC, SC_j)$, where social capital, SC, is defined as the network of relationships and their ties. It may be nationality specific, if differences exist between social capital of foreign-born and native-born individuals. HC represents another health input such as health care (if health is an economic "good") or cigarette/alcohol consumption (if health is an economic "bad"). Then, the individual solves the following problem:

$$\begin{aligned} &\max U_{ij}(C_{ij}, H_{ij}), \\ &\quad \text{s.t. } H_{ij} = H(HC, SC_j) \\ &\qquad pH_{ij} + C_{ij} = Y_{ij} \\ &\qquad j = 1, 2 \end{aligned}$$

DATA AND VARIABLES DESCRIPTION

We use data from the 2006 Spanish Health Survey, which is a nationwide representative survey and includes, for the first time, a representative sample of the immigrant population. The survey is carried out by the Ministry of Health and Consumption and consists of a sample of 26,607 Spanish-born and 2,309 immigrant residents aged 16 and over for whom we have information on their health status, utilisation of health services,

lifestyles, social relations and various socioeconomic characteristics (referring both to the individual and to the head of the household).

We use four different outcome variables regarding auto-perceived health status and mental health. These can be split into objective and subjective and objective the indicators. The subjective indicators are self-reported health status, where individuals are asked to self-report into a 5-point scale (1-very good, 2-good, 3-fair, 4-bad and 5-very bad) their perceived health status in the last twelve months. As usual, we collapse this variable into a binary indicator that takes the value 1 if individuals self-report a very good or good health status and 0 otherwise. Self-rated health is widely used as indicator of "true" health status, because it is simple and a good predictor of life expectancy, mortality, morbidity, and chronicity (Idler and Kasl, 1995; Idler and Beyamini, 1997; Burström and Fredlund, 2001, Huisman et al, 2007; Dowd and Zajcova, 2007). The other subjective variable is a binary indicator take the value 1 if the individual reports to have suffered a depression, anxiety or any other mental disorder episode during the last twelve months.

The first objective indicator is based on the General Health Questionnaire (GHQ-12), which is used to identify the possible existence and severity of mental health conditions such as anxiety, depression, etc. The GHQ-12 ranges from 0 to 12 and is calculated as the sum of the positive answers to twelve questions regarding problems of mental concentration, sleep disorders caused by worries, feeling of uselessness, ability to take decisions, feeling of tension/oppression, inability to deal with difficulties, enjoyment of daily activities, ability to face problems adequately, lack of happiness and loss of self-confidence. The second objective variable is binary indicator taking the value 1 whether the individual has been currently diagnosed by a doctor to suffer any depression, anxiety or any other mental health problem.

The vector of covariates includes two groups of variables, i.e. individual characteristics and community based social capital indicators. The set of individual variables can be split into three groups, i.e. socio-demographic characteristics (household income, age, gender, education, employment status and social class), health-related behaviors (body mass index, alcohol consumption, smoking behavior and physical activity. In table 1

and 2 we show a description and a summary statistics of the variables used in the analysis, respectively.

[Insert table 1 around here]

[Insert table 2 around here]

Table 2 describes the main characteristics of the two samples. Most variables show important divergences. Given the type of immigration into Spain over the past decade, mostly economic migration, it is not surprising that foreign-born individuals are on average younger than the autochthonous population (51.7 versus 38.2 years of age). Immigrant residents are remarkably younger, more educated, mainly work as white and blue-collars, while natives mainly work as clerical, self-employed and white collars.
The beneficial impact of marriage and co-habitation on health, backed up by ample evidence (Gardner and Oswald, 2004), is controlled for by five dummy variables describing the respondent's marital status: married (57% of the Spanish and 52% of the non-Spanish individuals), single (24% and 37% in each sub-sample), widowed (13% versus 3% in favor of the Spanish residents) and divorced/separated (the percentage of divorced/separated individuals is almost twice higher among the immigrant population).

Numerous studies have shown the relevance of educational qualification as a health enhancing and protection factor. Furthermore, recent studies have revealed that education not only generates increasing returns in term of individual earnings, but also that it causes other external (social) benefits such as higher civic participation or lower crime rates (Moretti, 2004; Milligan et al, 2004; Lochner and Moretti, 2004). Significant differences are observed between Spaniards and non-Spaniards. There are more university graduates among the immigrant resident population compared to the native-born individuals (18.9% versus 15.3%). On the contrary, the percentage of people with primary studies is much higher among the native population (35.7% versus 22.4%).

Labor status is accounted for by eight dummy variables: Working, working but on leave for at least 3 months, unemployed, retired, student, homework, non-paid work, other. The high percentage of inactive population in the sub-sample of Spaniards (20,2%) is explained by the fact that it includes the retired, individuals who receive different types of

pensions, students, and housewives. The share of inactive among the immigrants is 17%. Regarding the occupation, the non-qualified workers (blue-collars) account for 12% of the autochthonous population), while this percentage among the foreign-born is 22%. The proportion of unemployed among the Spaniards ascends to 5.9%, while 8.9% of the immigrants is unoccupied.

Five variables are included in the group of health-related factors to capture the effect of unhealthy lifestyles on health: i) smoking habits and a second, ii) alcohol consumption, iii) the BMI of the respondent, iv) amount of physical exercise in the daily activities and v) the practice of physical exercise in the leisure time. There are some differences among the tow sub-samples of analysis. Thus, some 26.2% of the Spaniards smokes on a regular or occasional basis, while 31.7% of the immigrants do so. The percentages are similar in the case of those who have never smoked (52.6% of the autochthonous versus 52.8% of the foreign-born population). The body mass index (BMI) revels that obesity is a more serious problem among the Spaniards (some 15% of them has a BMI of above 30 kg/m^2), but there are a smaller number of immigrants (11.6%) who are obese (a possible explanation may be employment in physically demanding activities, but also a change in diet habits). Alcohol consumption reports a similar pattern in both groups, 46.7% and 48.6% for Spanish-born and immigrants, respectively. Finally, immigrants do more physical activity in both their daily activities and leisure time than natives. Almost 44% of the immigrants do physical exercise in their leisure time, while only 39% of the Spaniards do. On the contrary, 35% of the native-born remain seated most of the day, while this percentage for immigrants is only 21.4%.

Lastly, eleven variables measuring individual social capital were included. This set of variables is collapsed into four factors using principal components analysis. The first factor (factor 1) is associated to three variables related to the possibility to talk with someone about individual's problems. The loadings for the second factor (factor 2) refer to three variables regarding the affection perceived by the individual. The third factor (factor 3) is associated to three variables collecting the degree of individual's social interactions. And finally, the fourth factor (factor 4) is related to two variables regarding recognition at the work place and help received for the domestic issues. In table 1 we show the variables included in each factor. Previous evidence reveals the positive effect

of social interactions, especially with family, relatives and close friends, and the overall health of the individual

Our social capital variables are aggregated at a regional level (18 Spanish Autonomous Regions). We choose this geographical division since each of these regions. Our social capital indicators are constructed following Putnam's (1993) spirit. To do so we use the Spanish files of the World Values Survey for 1995, 2000 and 2005. Putnam (1993, p. 167) defines social capital as features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions. According to this definition, we use three sets of variables picking up the three dimensions of social capital pointed out in Putnam (1993). As usual, social trust is proxied using the responses to the question; "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people*?". Social norms are approached using to questions where individuals are asked to report whether they find acceptable or not the following actions: i) Claiming government benefits to which you are not entitled, (ii) Avoiding a fare on public transport, (iii) Cheating on taxes if you have a chance, and (iv) Someone accepting a bribe in the course of their duties. Finally, we use the individuals' associational activities regarding church/religious organizations, art/ music or educational organizations, labor unions, political parties, environmental organizations, professional organizations and humanitarian or charitable organizations.

Our social capital indicators are constructed averaging by region the variables mentioned above and applying principal component analysis to the aggregated variables regarding social norms and associational activities. Some studies have already employed factor analyses to capture the multidimensional aspect of social capital (Onyx and Bullen, 2000; Bjornskov and Svedsen, 2003, Bjornskov, 2006). This procedure allows for uncovering the latent dimensions of a set of variables by grouping correlated attributes (attributes that may reflect a shared underlying trait). Some have expressed doubts about the validity of the instruments obtained through the factor analyses (Hair at al, 1998), because of the uncertainty in identifying the underlying factors and in determining the total number of factors. However, the development of a generally accepted method for constructing a valid and reliable social capital index is still in its early stages (Islam et al, 2008). Despite this criticism, we find factor analysis a suitable

technique since it allows to avoid overlapping effects and other technical shortcomings derived from using a large number of, generally, correlated variables. The principal component analysis allows us to identify three different factors. The first factor (SCF1) is related with the associational activity regarding church/religious organizations, political parties, environmental organizations and professional organizations. The second factor (SCF2) is associated to all the variables regarding social norms. And the third factor (SCF3) picks-up the associational activity regarding educational organizations and humanitarian or charitable organizations. In table 2, we show a summary statistics by region of the collective social capital variables.

[Insert table 3 around here]

EMPIRICAL MODEL

We have *i* individuals (i=1, …, n), who reside in *j* autonomous region (*j* =1, …*k*). Individual's health status, our dependent variable, is not directly observed, but can be proxied by a dummy variable, Y_{ij}, such that:

$$Y_{ij} = \begin{cases} 1 & si \quad Y_{ij}^{*} > 0 \\ 0 & c.c. \end{cases} \tag{1}$$

where Y_{ij}^{*} is determined by the following lineal relation:[1]

$$Y_{ij}^{*} = \beta_{0j} + \beta_{1j} X_{ij} + \varepsilon_{ij} \tag{2}$$

X_{ij} represents individual characteristics, and ε_{ij} is random error term. The coefficient β_{1j} shows the distribution of the outcome variable Y_{ij} across region *j* as a function of individual characteristics X_{ij}. The constant term β_{0j} represents the differences in the mean level of Y_{ij}, after controlling for the individual attributes X_{ij}. If we assume ε_{ij} follows a logistic distribution, then we get:

[1] For sake of simplicity, we assume the univariate case -a sole independent variable *x*- although the model can be easily extended to the multivariate case.

$$P(Y_{ij}=1)=P(Y_{ij}^{*}>0)=P\left(\varepsilon_{ij}<\beta_{0j}+\beta_{1j}X_{ij}\right)=\frac{\exp\left(\beta_{0j}+\beta_{1j}X_{ij}\right)}{1+\exp\left(\beta_{0j}+\beta_{1j}X_{ij}\right)}, \quad (3)$$

The two-level hierarchic structure implies that *n* individuals (the first level) are nested within *j* autonomous regions (the second level). As it stands, equation (2) is still essentially a single level causal model. If the second level is omitted, that is, if sub-index *j* is eliminated from the expression in (2), the effect of covariates on the outcome variable can be estimated by a simple logistic regression. The implications of considering level two in the above model are that the coefficients β_{0j} and β_{1j} are not only parameters to be estimated, but can also be modelled as a outcome variables depending on a set of contextual characteristics regarding the second level, that is, the autonomous regions. Consequently, the parameters are not fixed for the whole sample, but include a random component that varies across regions. Thus, the most appropriate for our purposes model is the multilevel model with a random constant term (β_{0j})

In this model we assume that the first-level constant term (β_{0j}) in model (2) includes a random component that varies across level two (autonomous regions), while the coefficient associated to the explanatory variable (β_{1j}) is fixed for the whole sample. Thus, the second level is defined in the following way:

$$\beta_{0j}=\gamma_{00}+u_{0j}; \qquad \beta_{1j}=\gamma_{10}. \quad (4)$$

Replacing (4) in (2) and rearranging terms, we get:

$$Y_{ij}^{*}=\gamma_{00}+\gamma_{10}X_{1ij}+u_{0j}+\varepsilon_{ij}. \quad (5)$$

The difference between models (2) and (5) is that the later model incorporates a zero mean random effect, u_{0j}, which varies across autonomous regions, as well as two fixed terms for the whole sample, γ_{00} and γ_{01}.

Alternatively, we can assume that the second-level constant term in equation (2) is determined not only by a random component u_{0j}, as is done is equation (5), but also by a set of contextual variables, Z_j, that vary across autonomous regions. Consequently, equation (4) can be expressed as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} Z_j + u_{0j}; \qquad \beta_{1j} = \gamma_{10} . \tag{6}$$

Replacing (6) in (2) and rearranging terms, we get:

$$Y_{ij}^{*} = \gamma_{00} + \gamma_{10} X_{ij} + \gamma_{01} Z_j + u_{0j} + \varepsilon_{ij} , \tag{7}$$

Although the model (7) is quite simple, it allows controlling for individual characteristics, X_{ij}, group attributes, Z_j, and a group-specific random component, u_{0j}, that captures the differences in the outcome variable across autonomous regions.

RESULTS

Results of the econometric estimates are reported in table 4. We start commenting the results regarding the outcome variable *Riskmental* (table 4a). Recall that this variable is an indicator ranging form 0 to 12, so we do not employ the multilevel logit model described above, but a multilevel linear regression. First at all, the LR-test suggests that for both native-born and immigrants the multilevel modeling is appropriate, since any of the variables included in the regression is able to capture all the regional differences in the outcome variables. For both groups, higher income reduces the risk of mental health. Surprisingly, for natives age is not significant, while for immigrants the effect is U-shaped. Women are also more prone to mental health problems, though the effect is larger for immigrants. Education is significant only for natives, i.e. less educated individuals are more likely to be at risk of mental disorder, while social class, approached as the occupation of the household head, has turned out to be not significant in both population groups.

The set of variables regarding the health habits of the individuals display a remarkable larger effect for natives than for immigrants. For natives, smokers, alcohol consumers, people that remain mostly seated in their daily activities and do not practice physical exercise in their leisure time are more prone to be at risk of mental disorder. In contrast, for immigrants, most of these dummy variables tend to be not statistically significant. As we expected, higher levels of individual social capital significantly reduces the risk of mental illness. The four factors reports similar effects, thought for factor 1 (possibility to talk with someone about problems) and factor 2 (affective ties) our results indicates that the effect seems to be larger for natives than for immigrants.

Regarding the effect of collective social capital, our results are quite revealing. Trust do not seem to exert any effect on the risk of mental disorders, however, for native born the factor associated to social norms (SCF2) exert a significant effect (at 10 percent level). That is, in regions with more relaxed social norms, individuals are less prone to be at risk of mental disorders. This factor, however, do not exert a significant effect for immigrants. Regarding the associational activities, those loaded in the factor SCF1 (church/religious organizations, political parties, environmental organizations and professional organizations) is not significant in any of the populations groups. However, the associational activities picked-up in the factor SCF3 (educational organizations and humanitarian or charitable organizations) exerts an unequivocal and highly statistically significant effect for both natives and immigrants, though the effect is remarkably larger for immigrants. That is, in regions where the percentage of individual engaged in these two associational activities is larger, individuals are less likely to be at risk of mental sickness.

Results regarding the outcome variables *Depres1* and *Depres2* also reveal interesting patterns. Recall that the variable *Depres1* refers to whether the individual reports have experience a depression, anxiety or any other mental disorder episode during the last twelve. In contrast, *Depres2* indicates whether this mental disorder episode is currently diagnosed by a doctor. Results regarding both variables are quite similar, therefore, for the sake of brevity we focus on the results regarding the variable *Depres2* (table 4b). Income only reduces the probability of mental disorders for natives, while it does not for immigrants. For both groups the effect of age is inverted U-shaped, which is contrast with the U-shaped effect estimated for the variable *Riskmental*. Women are remarkably

more prone to suffer mental disorders, while education is only relevant for natives. Regarding the health habits, over-weighted/ obese and smokers are more likely to be diagnosed a mental disorder for both immigrants and natives. However, alcohol consumption and a poor physical activity increase this probability only for Spanish-born residents. As in the case of *Riskmental*, for the variable *Depres2* all the factors collecting the effect of the individual social capital are statistically significant, i.e. higher stocks of individual social capital reduces the probability of suffering any mental disorder.

Our variables collecting the effect of collective social capital on the variable *Depres2* report quite revealing results. As before, *trust* and the associational activities loaded in factor (SCF1) are not statistically significant. However, the associational activities collected by the factor (SFC3), report once more an unequivocal negative effect on the probability of mental sickness. These results are in contrast with the results of the outcome variable regarding self-reported health status (*SRhealth*). For this variable, only the associational activities loaded in factor SFC1 exert a significant positive effect on the probability of reporting good health for Spanish-born residents.

CONCLUSIONS

In this paper we have investigated the effect of social capital on the health of Spanish-born resident and immigrants. We have used both objective and subjective indicators. The objective indicators are the risk of mental health based on the GHQ-12 questionnaire, and diagnose by a doctor of depression, anxiety or any other metal disorder episode. The subjective ones are self-reported health status and whether the individual reports to have suffered depression, anxiety or any other metal disorder episode in the last twelve month. Our estimates reveal a significant effect of some of the social capital variables. *Trust* and some associational activities associated to church/religious organizations, political parties, environmental organizations and professional organizations do not seem to exert any effect on individuals' mental health. This result is consistent with some recent empirical individual-level studies showing that activity in voluntary organisations is only very weakly associated with generalised trust. Contrary to Putnam's explanation, associational activity only creates benefits for members but this does not extend to outsiders. However, our results also provide some

support to Putnam's claim, at least partially, since in regions with a higher percentage of individuals engaged in educational or charity association individuals are unequivocally less likely to suffer any mental health disorder. These results persist for both Spanish-born and immigrant. The most striking result regards the effect of social norms. Higher levels of social tolerance to non adequate social behaviour reduce the risk of mental sickness for natives. However, this effect reverses to positive for immigrants on the probability of experiencing depression, anxiety and any other mental disorder episode.

REFERENCES

Addy, C.L., Wilson, D.K., Kirtland, K.A., Ainsworth, B.E., Sharpe, P. Kimsey, D. (2004), "Associations of perceived social and physical environmental support with physical activity and walking behaviour", American Journal of Public Health 94(3): 440–443.

Becker, G.S., Murphy, K.M. (2000), *Social economics. Market behaviour in a social environment*, The Belknap Press of Harvard University Press, Cambridge, MA.

Bjornskov, C., Svendsen, G.T. (2003), "Measuring social capital: Is there a single underlying explanation?", Working Paper 03-5. Department of Economics, Asrhus School of Business, Denmark.

Borjas, G.J. (2003), "Welfare Reform, Labor Supply, and Health Insurance in the Immigrant Population", Journal of Health Economics 22(6), pp. 933-58

Brown, T., Scheffler, R., Sukyong, S., Reed, M. (2006), "The empirical relationship between community social capital and the demand for cigarettes", Health Economics 15: 1159-1172.

Burström, B., Fredlund, P. (2001), "Self-rated health: is it a good predictor of subsequent mortality among adults in lower as well as in higher social classes?", Journal of Epidemiology and Community Health 55(11): 836-840.

Cullen, M., Whiteford, H. (2001), *The interrelations of social capital with health and mental health*, Canberra: Commonwealth of Australia.

Devillanova, C. (2008), "Social Networks, Information and Health Care Utilization: Evidence from Undocumented Immigrants in Milan", Journal of Health Economics 27(2), pp. 265-86

Dowd, J. B., Zajacova, A. (2007), "Does the predictive power of self-rated health for subsequent mortality risk vary by socioeconomic status in the US?", International Journal of Epidemiology 36: 1214-1221.
Durlauf, S.N. (2002), "On the empirics of social capital", The Economic Journal 112(483): 459-479.

Folland, S. "An economic model of social capital and health", Health Economics, Policy and Law 3: 333-348.

Gardner, J., Oswald, A. (2004), "How is Mortality Affected by Money, Marriage and Stress?", Journal of Health Economics 23: 1181-1207.

Glaeser, E.L., Laibson, D., Sacerdote, B. (2000), "An economic approach to social capital", The Economic Journal 112(483): 437-458.

Grootaert, van Bastelaer, (2001), "Understanding and Measuring Social Capital: A Synthesis of Findings and Recommendations", Documento de trabajo del Social Capital Initiative, n° 24, The World Bank, Washington.

Grossman, M. (1972)

Harpham, T., Grant, E., Thomas, E. (2002), "Measuring social capital within health surveys: key issues", Health Policy and Planning, 17(1); 106-111.

Haughton McNeill, L., Kreuter, M.W., Submanian, S.V. (2006), "Social environment and physical activity: A review of concepts and evidence", Social Science and Medicine 63(4): 1011-1022.
http://siteresources.worldbank.org/INTSOCIALCAPITAL/Resources/Social-Capital-Initiative-Working-Paper-Series/SCI-WPS-24.pdf [25 July 2007].

Huisman, M., van Lenthe, F., Mackenbach, J. (2007), "The predictive ability of self-assessed health for mortality in different educational groups", International Journal of Epidemiology 36: 1207-1213.

Idler, E.L., Beyamini, Y. (1997), "Self-rated health and mortality: a review of twenty-seven community studies", Journal of Health and Social Behaviour 38: 21-37.
Idler, E.L., Kasl, S. (1995), "Self-ratings of health: Do they also predict change in functional disability?", Journal of Gerontology and Social Science 50B: S344-S353.

Islam, K., Merlo, J., Kawachi, I., Lindström, M., Gertham, U.-G. (2006), "Social capital and health: Does egalitarianism matter? A literature review", International Journal for Equity and Health 5(3): 28.

Islam, M.K., Gertham, U.-G., Gullberg, B., Lindström, M., Merlo, J. (2008), "Social capital externalities and mortality in Sweden", Economic and Human Biology 6: 19-42.

Kawachi, I., Kim, D., Coutts, A., Subramanian, S. (2004), "Commentary: Reconciling the three accounts of social capital", International Journal of Epidemiology 33(4): 682-690.

Lindström, M., Hanson, B.S., Östergren, P.O. (2001), "Socioeconomic differences in leisure time physical activity: the role of shaping participation and social capital in shaping health related behaviour", Social Science and Medicine 52(3): 441-451.

Lindström, M., Moghaddassi M., Merlo, J. (2003), "Social capital and leisure time physical activity: a population-based multilevel analysis in Malmö, Sweden", Journal of Epidemiology and Community Health 57(1): 23–28.

Lindström, M., Moghaddassi, M., Bolin, K., Lindgren, B., Merlo, J. (2003), "Social capital and daily tobacco smoking: a population-based multilevel analysis in Malmö, Sweden", Scandinavian Journal of Public Health 31(6): 444-450.

Lochner, L, Moretti, E. (2004), "The effect of education on crime: evidence from prison inmates, arrests, and self-reports", American Economic Review 94: 155-189.

Lundborg (2005), "Social capital and substance use among Swedish adolescents – an explorative study", Social Science & Medicine 2005, 61(6): 1151-1158.

Macinko J., Starfield B. (2001), "The Utility of Social Capital in Research on Health Determinants", The Milbank Quarterly, September, 79(3): 387-427.
Maycock, B.R., Howat, P. (2007), "Social capital: implications from an investigation of illegal anabolic steroid networks", Health Education Research December 1, 22(6): 854-863.

Milligan, K., Moretti, E., Oreopoulos, P. (2004), "Does education improve citizenship? Evidence from the U.S. and the U.K.", Journal of Public Economics 88: 1667-1695.

Morreti, E. (2004), "Estimating the social returns to higher education: evidence from longitudinal and repeated cross-sectional data", Journal of Econometrics 121: 175-212.

Mummery, W.K., Lauder, W., Schofield, G., Caperchione, C. (2007), "Associations between physical inactivity and a measure of social capital in a sample of Queensland adults", Journal of Science and Medicine in Sport, en prensa.

Onyx, J., Bullen, P. (2000), "Measuring social capital in five communities", Journal of Applied Behavioural Science 36: 23-42.

Poortinga, W. (2006), "Do health behaviors mediate the association between social capital and health?", Preventive Medicine 43: 488-493.

Putnam R. (2000), *Bowling Alone. The Collapse and Revival of American Community*, New York: Simon and Schuster.

Rose, R. (2000), "How much does social capital add to individual health= A survey of Russians", Social Science and Medicine 51(9): 1421-1435.

Stahl, T., Rutten, A., Nutbeam, D., Bauman, A., Kannas, L., Abel, T., Luschen, G., Rodriquez, D.J., Vinck, J., van der Zee, J. (2001), "The importance of the social environment for physically active lifestyle-results from an international study", Social Science and Medicine 52(1): 1–10.

Storr, C.L., Chen, Y., Anthony, J. (2004), ""Unequal opportunity": neighbourhood disadvantage and the chance to buy illegal drugs", Journal of Epidemiology and Community Health 58(3): 231-237.
Szreter S., Woolcock, M. (2004), "Health by association? Social capital, social theory, and the political economy of public health", International Journal of Epidemiology 33(4): 650-667.

Takashi, L.M., Magalong, M.G. (2008), "Disruptive social capital: (Un)Healthy socio-spatial interactions among Filipino men living with HIV/AIDS", Health & Place 14: 182-197.

Weitzman, E.R, Chen, Y. (2005), "Social capital's risk modifying effects on measures of heavy alcohol consumption, alcohol abuse, harms, and second-hand effects; national survey findings", Journal of Epidemiology and Community Health, 59(4): 303-309.

Woolcock, M. (1998), "Social capital and economic development: Towards a theoretical synthesis and policy framework", Theory and Society 27: 151-208.
Yang, K. (2007), "Individual social capital and its measurement in social surveys", Survey Research Methods 1(1): 19-27.

Table 1: Description of the variables

Outcome variables	
Riskmental	Risk of mental health based on GHQ-12
Depres1	Dummy that takes the value one if the individual has suffered depression, anxiety or any other mental disorder during the last 12 months
Depres2	Dummy that takes the value one if the individual has been currently diagnosed by a doctor depression, anxiety or any other mental
SRhealth	Dummy that takes the value one if the individual has reported a very good or good health status
Socio-demographic variables	
Ln(income)	Houshold income imputed from interval regression
Age	Age of the individual
female	dummy variable for gender
Nostud	dummy variable that takes the value 1 if the individual has not completed primary education
Primary	dummy variable that takes the value 1 if the individual has completed primary education
Secondary	dummy variable that takes the value 1 if the individual has completed secondary education
SClass	Social class based on the occupation of the household head 1. Managers in big firms and professionals high post-graduate education; 2. Managers in small firms and professionals high graduate education; 3. Clericals, services and security workers, self-emplyed and supervisors of core employees; 4. White-collars; 5. Semi white-collars; 6. Blue-collars
Employ	Employment status 1. Working; 2. Working but on leave for at least 3 months; 3. Unemployed; 4. Retired; 5. Student; 6. Homework; 7. Non-paid work; 8. other
Health behavior	
Body mass index	0 if 19.5<BMI<25.8; 1 if BMI<19.5; 2 if 25.8<BMI<30; 3 if BMI>30; 4 if missing
Smoke	1 if smokes daily; 2 if smokes ocassionaly; 3 if do not smoke but smoke before; 4 never smoked
Alcohol	dummy that takes the value 1 if the individual has consumed alcoholic drinks last 2 weeks
Exercise1	Type of physical activity at the main activity 1 if seated most of the day; 2 if stand without moving most of the day; 3 walk carrying some weight; 4 heavy physical activity
Exercise2	Dummy that takes the value 1 if the individual does physical exercise in his/her leisure time
Individual social capital	
Factor 1	
Hometalk	Has the possibility to talk with someone about problems at work or home
Familytalk	Has the possibility to talk with someone about personal and family problems
Econtalk	Has the possibility to talk with someone about economic problems
Factor 2	
Worry	Can you account with people that worry about you?
Affect	Do you receive love and affection?
Care	Do you receve help when you are sick in bed
Factor 3	
Visits	Do you receive visits from friends and relatives?
Invite	Do you receive invitations to enjoy and going out with other people?
Advise	Do you receive useful advices when an event ocurs?
Factor 4	
Help	Do you receive help in the issues regarding home?
Recognition	Do you receive praises and recognition at the workplace?

Note: Variables regarding individual social capital are coded as: 1. Much less that I whish; 2. Less than I whish; 3. Fair; 4. Almost as much as I whish; 5. As much as I whish.

Table 2: Summary statistics

	Spanish-born		Immigrants			Spanish-born		Immigrants	
	Mean	*S.D.*	*Mean*	*S.D.*		*Mean*	*S.D.*	*Mean*	*S.D.*
Outcome Variables					*Health behavior*				
Riskmental	1,622	2,67	1,541	2,36	19.5>BMI0>25.8	0,449	0,19	0,541	0,25
Depres1	0,169	0,37	0,104	0,31	BMI<19.5	0,016	0,13	0,027	0,16
Depres2	0,176	0,38	0,089	0,28	25.8>BMI<30	0,274	0,45	0,242	0,43
SRhealth	0,613	0,49	0,715	0,45	BMI>30	0,148	0,36	0,116	0,32
Socio-demographic variables					BMI missing	0,113	0,32	0,074	0,26
Ln(income)	7,127	0,57	7,174	0,51	Smoke1	0,239	0,11	0,265	0,08
Age	51,757	18,57	38,182	13,81	Smoke2	0,023	0,15	0,052	0,22
female	0,607	0,49	0,579	0,49	Smoke3	0,211	0,41	0,156	0,36
Without education	0,144	0,35	0,058	0,23	Smoke4	0,526	0,50	0,528	0,50
Primary education	0,357	0,48	0,224	0,42	Alcohol	0,467	0,50	0,486	0,50
Secondary education	0,346	0,48	0,529	0,50	Exercise1_1	0,350	0,66	0,214	0,61
Higher education	0,153	0,56	0,189	0,65	Exercise1_2	0,512	0,50	0,517	0,50
Single	0,243	0,29	0,368	0,27	Exercise1_3	0,110	0,31	0,187	0,39
Married	0,573	0,49	0,522	0,50	Exercise1_4	0,029	0,17	0,082	0,27
Widowed	0,133	0,34	0,030	0,17	Exercise2	0,390	0,49	0,438	0,50
Separated	0,029	0,17	0,039	0,19	*Individual social capital*				
Divorced	0,022	0,15	0,040	0,20	Hometalk	4,163	1,09	3,653	1,31
Manager big firms	0,089	0,38	0,083	0,26	Familytalk	3,961	1,24	3,610	1,32
Manager small firms	0,099	0,30	0,074	0,26	Econtalk	3,891	1,20	3,745	1,24
Clerical, services	0,263	0,44	0,123	0,33	Worry	4,645	0,74	4,387	0,95
White-collars	0,271	0,44	0,298	0,46	Affect	4,666	0,74	4,460	0,95
Semi white-collars	0,129	0,34	0,186	0,39	Care	4,606	0,79	4,343	1,01
Blue-collars	0,127	0,33	0,221	0,42	Visits	4,606	0,79	4,343	1,01
Working	0,432	0,29	0,666	0,24	Invite	4,591	0,80	4,337	1,02
Working on leave	0,015	0,12	0,010	0,10	Advise	4,332	1,03	4,028	1,19
Unemployed	0,059	0,24	0,089	0,29	Help	4,457	0,88	4,269	1,02
Retired	0,292	0,45	0,064	0,24	Recognition	4,695	0,73	4,434	0,98

Student	0,038	0,19	0,035	0,18
Homework	0,155	0,36	0,124	0,33
Non-paid work	0,001	0,02	0,000	0,02
Other	0,008	0,09	0,012	0,11

Note: Definitions and variable description are reported in table 1

Table 3: Collective social capital (average by region)

						SCF1				**SCF2**		**SCF3**
	trust	*church*	*union*	*party*	*environ*	*profess*	*benefit*	*fare*	*taxes*	*bride*	*art*	*charity*
Andalusia	1.976	0.352	0.126	0.079	0.066	0.099	2.685	2.343	2.324	1.817	0.104	0.124
Aragon	1.632	0.274	0.066	0.028	0.047	0.085	2.087	1.813	1.729	1.570	0.142	0.255
Asturias	1.723	0.265	0.108	0.029	0.029	0.078	2.511	2.505	2.188	1.693	0.167	0.098
Balearic Islands	1.944	0.417	0.167	0.083	0.153	0.139	1.507	2.264	1.444	1.347	0.153	0.125
Canary Islands	1.912	0.277	0.058	0.039	0.058	0.069	1.967	1.863	1.758	1.434	0.166	0.081
Cantabria	2.053	0.470	0.174	0.104	0.148	0.139	2.393	3.148	2.598	1.827	0.243	0.261
Castilla-Leon	1.925	0.481	0.123	0.074	0.086	0.099	2.316	2.848	1.913	1.688	0.123	0.160
Castilla-La Mancha	1.902	0.420	0.111	0.066	0.088	0.093	1.781	1.785	1.559	1.344	0.173	0.159
Catalonian	1.934	0.232	0.097	0.045	0.052	0.083	2.077	2.168	1.801	1.592	0.187	0.093
Com. of Valencia	1.794	0.381	0.143	0.048	0.058	0.085	1.511	2.032	1.492	1.278	0.164	0.085
Extremadura	2.045	0.435	0.110	0.080	0.070	0.095	1.863	2.026	1.891	1.203	0.160	0.100
Galicia	2.010	0.230	0.080	0.050	0.030	0.080	2.939	2.561	3.316	1.838	0.090	0.070
Madrid	1.811	0.395	0.106	0.074	0.057	0.127	1.776	1.970	1.765	1.564	0.146	0.159
Murcia	1.930	0.470	0.070	0.090	0.070	0.070	2.521	2.464	2.792	1.753	0.200	0.120
Navarra	1.617	0.083	0.042	0.021	0.000	0.063	2.298	2.021	1.875	1.417	0.042	0.000
Rioja	1.893	0.217	0.051	0.035	0.020	0.056	3.249	3.005	3.289	2.264	0.126	0.061
Basque Country	1.893	0.369	0.107	0.071	0.119	0.099	2.033	2.069	1.984	1.825	0.210	0.103

Table 4a: Econometric estimates (variable definitions in table 1)

	Riskmental				**SRhealth**			
	Spanish-born		*Immigrants*		*Spanish-born*		*Immigrants*	
	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
Constant	4,497	4,26	7,003	3,82	3,093	2,76	-0,075	-0,04
Socio-Deomgraphic								
Ln(income)	-0,203	-5,38	-0,396	-3,66	0,216	5,89	0,187	1,55
Age	0,000	0,06	-0,028	-1,60	-0,065	-10,50	-0,017	-0,89
Age2	0,000	-0,53	0,000	1,53	0,000	6,77	0,000	-0,54
Woman	0,543	14,34	0,823	7,43	-0,452	-11,87	-0,787	-6,17
Without education	0,609	7,79	0,118	0,45	-0,790	-10,29	-0,027	-0,09
Primary education	0,204	3,31	0,009	0,06	-0,515	-8,10	-0,135	-0,73
Secondary education	0,167	3,04	0,096	0,69	-0,319	-5,39	-0,201	-1,27
Working on leave	2,166	16,42			-1,933	-15,68		
Unemployed	0,637	8,83			-0,495	-7,29		
Retired	0,675	11,04			-0,717	-12,90		
Student	0,079	0,77			0,129	0,92		
Homework	0,396	7,05			-0,446	-8,63		
Non-paid work	-0,152	-0,22			-0,598	-0,95		
Other	1,768	9,05			-1,247	-6,96		
Manager small firms	0,109	1,48	0,182	0,73	-0,132	-1,69	-0,465	-1,61
Clerical, services	0,019	0,28	0,053	0,24	-0,116	-1,66	-0,323	-1,20
White-collars	-0,049	-0,71	0,355	1,64	-0,250	-3,48	-0,580	-2,27
Semi white-collars	0,078	1,02	0,363	1,59	-0,348	-4,44	-0,543	-2,01
Blue-collars	0,058	0,73	0,393	1,71	-0,262	-3,26	-0,634	-2,35
Health Habits								
BMI<19.5	0,157	1,22	-0,487	-1,54	-0,184	-1,36	-0,504	-1,56
25.8>BMI<30	-0,053	-1,34	0,061	0,51	-0,111	-2,92	-0,076	-0,56
BMI>30	0,063	1,29	0,203	1,29	-0,434	-9,59	-0,662	-4,08
BMI missing	-0,024	-0,41	0,172	0,86	-0,096	-1,75	-0,279	-1,32
Alcohol consumer	0,274	7,99	-0,148	-1,38	-0,289	-8,81	-0,147	-1,26
Occasional smokers	-0,100	-0,91	0,519	2,19	0,187	1,65	-0,316	-1,25
Ex-smoker	-0,142	-2,93	0,054	0,34	-0,003	-0,07	0,089	0,52
Never smoked	-0,100	-2,37	-0,021	-0,17	0,179	4,24	0,179	1,29
Stand without move	-0,652	-17,53	-0,308	-2,34	0,413	11,37	0,188	1,29
Walk carrying weight	-0,464	-8,15	-0,279	-1,72	0,337	6,02	0,072	0,40
Heavy physical act.	-0,188	-1,91	-0,370	-1,73	-0,065	-0,68	0,013	0,06
Physical E. leisure	0,400	11,97	0,148	1,47	-0,302	-9,38	-0,052	-0,48
Individual Social C.								
Factor 1 (talk problems)	-0,336	-20,43	-0,233	-5,98	0,064	4,13	0,209	5,14
Factor 2 (affection)	-0,338	-20,61	-0,253	-6,52	0,083	5,40	-0,004	-0,10
Factor 3 (social life)	-0,345	-21,03	-0,344	-7,95	0,129	8,33	0,200	4,31
Factor 4 (recognition)	-0,281	-17,47	-0,237	-4,87	0,116	7,54	0,076	1,43

Collective Social C.								
Trust	-0,412	-0,79	-1,282	-1,56	-0,764	-1,36	0,477	0,54
SCF1	-0,022	-0,87	-0,004	-0,12	0,056	2,11	0,057	1,44
SCF2	-0,059	-1,75	-0,004	-0,08	0,027	0,75	-0,061	-0,97
SCF3	-0,194	-3,41	-0,285	-3,77	0,023	0,38	0,100	1,23
Latin America			0,406	2,44			0,154	0,86
Asia			0,158	0,47			-0,214	-0,62
EU-15			0,142	0,71			0,196	0,89
Central/East Europe			-0,186	-0,94			0,345	1,56
Wealthy Countries			0,168	0,50			0,362	0,90
Random-Effects	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Sd(Constant)	0,185	0,037	0,183	0,084	0,201	0,038	0,189	0,075
Sd(Residual)	2,400	0,011	2,136	0,034				
LR test	74,250	0,000	2,620	0,053	134,710	0,000	4,110	0,021
Log-likelihood	-54.048		-4.363		-12.999		-1.087	
Sample size	23.552		2.001		23.909		2.031	

Table 4b: Econometric estimates (variable definitions in table 1)

	Depres1				**Depres2**			
	Spanish-born		*Immigrants*		*Spanish-born*		*Immigrants*	
	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
Constant	-3,526	-2,87	-2,429	-0,96	-3,750	-2,75	-4,307	-1,61
Socio-Deomgraphic								
Ln(income)	-0,241	-5,43	-0,132	-0,76	-0,232	-5,32	0,090	0,49
Age	0,097	12,46	0,047	1,64	0,114	14,49	0,111	3,44
Age2	-0,001	-12,24	0,000	-1,07	-0,001	-14,29	-0,001	-2,82
Woman	0,907	18,38	1,138	5,69	0,979	20,04	1,402	6,29
Without education	0,392	4,21	0,118	0,26	0,277	3,03	-0,138	-0,29
Primary education	0,213	2,65	0,090	0,32	0,148	1,88	0,175	0,62
Secondary education	0,190	2,55	0,366	1,54	0,180	2,49	0,152	0,64
Working on leave	0,922	7,10			0,895	6,97		
Unemployed	0,418	5,05			0,380	4,61		
Retired	0,661	9,79			0,700	10,57		
Student	-0,012	-0,07			-0,072	-0,38		
Homework	0,384	6,20			0,412	6,82		
Non-paid work	0,437	0,56			0,344	0,44		
Other	1,126	6,01			0,927	4,84		
Manager small firms	0,030	0,31	0,332	0,74	-0,034	-0,36	0,157	0,38
Clerical, services	-0,046	-0,53	0,254	0,62	-0,025	-0,30	0,230	0,61
White-collars	-0,025	-0,28	0,535	1,38	-0,022	-0,26	0,154	0,42
Semi white-collars	0,111	1,17	0,808	2,02	0,109	1,17	0,573	1,51
Blue-collars	-0,003	-0,03	0,612	1,50	-0,052	-0,54	0,017	0,04
Health Habits								
BMI<19.5	0,314	2,08	0,054	0,11	0,123	0,78	-0,063	-0,11
25.8>BMI<30	0,017	0,35	0,341	1,79	0,063	1,37	0,428	2,12
BMI>30	0,231	4,29	0,244	1,00	0,274	5,16	0,502	2,03
BMI missing	-0,069	-1,10	0,374	1,26	0,002	0,03	0,452	1,47
Alcohol consumer	0,303	7,62	-0,189	-1,11	0,302	7,70	-0,065	-0,36
Occasional smokers	-0,198	-1,38	0,043	0,12	-0,276	-1,92	-0,593	-1,38
Ex-smoker	-0,232	-3,89	-0,244	-1,00	-0,229	-3,93	-0,640	-2,45
Never smoked	-0,268	-5,15	-0,490	-2,48	-0,311	-6,07	-0,644	-3,17
Stand without move	-0,354	-8,22	-0,164	-0,77	-0,345	-8,12	-0,093	-0,42
Walk carrying weight	-0,314	-4,49	-0,092	-0,35	-0,303	-4,41	-0,056	-0,20
Heavy physical act.	-0,228	-1,70	0,013	0,03	-0,162	-1,24	0,170	0,41
Physical E. leisure	0,135	3,50	-0,234	-1,45	0,075	1,96	-0,216	-1,25
Individual Social C.								
Factor 1 (talk problems)	-0,104	-6,09	-0,243	-4,52	-0,094	-5,56	-0,220	-3,75
Factor 2 (affection)	-0,152	-9,18	-0,143	-2,73	-0,126	-7,66	-0,139	-2,45
Factor 3 (social life)	-0,160	-8,98	-0,257	-3,91	-0,150	-8,46	-0,242	-3,46
Factor 4 (recognition)	-0,124	-6,74	-0,191	-2,51	-0,105	-5,77	-0,133	-1,64

Collective Social C.								
Trust	0,302	0,50	-0,992	-0,94	0,170	0,25	-1,434	-1,31
SCF1	-0,042	-1,44	-0,044	-1,10	-0,044	-1,36	-0,036	-0,87
SCF2	-0,010	-0,25	0,170	2,22	-0,006	-0,15	0,185	2,33
SCF3	-0,192	-2,92	-0,427	-4,86	-0,169	-2,28	-0,373	-4,03
Latin America			0,596	1,89			0,455	1,36
Asia			-0,442	-0,56			-0,085	-0,12
EU-15			0,349	0,96			0,560	1,50
Central/East Europe			0,140	0,37			-0,258	-0,61
Wealthy Countries			0,488	0,84			-0,118	-0,17
Random-Effects	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Sd(Constant)	0,213	0,044	0,000	0,167	0,244	0,048	0,000	0,148
LR test	71,330	0,000	0,000	0,999	106,360	0,000	0,000	0,999
Log-likelihood	-9.670			-591		-9.898		-536
Sample size	23.909			2.031		23.909		2.031