# The determinants of subjective poverty in Europe: the role of household socioeconomic characteristics and social capital and the implications for public policies<sup>\*</sup>

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#### Abstract

This paper aims at showing to what extent self-perceived poverty in Europe is associated with specific household socioeconomic characteristics and particular aspects of household/community social capital endowment, in order to disclose the primary risk factors of family poverty status. Such evidence would help central and local governments to define those economic and social goals which should receive more attention by policies aiming at poverty eradication. In particular, the paper focuses on the associations between a proxy of subjective poverty (ability to make ends meet) and two sets of variables describing, respectively, the household socioeconomic characteristics and the household/community social capital endowment. In order to pursue this aim, a multiple correspondence analysis and a generalized ordered logit model are carried out. The empirical analysis is based on the 2008 EU-SILC survey and the Eurostat statistics database. The results show a relevant association between self-perceived poverty and both household socioeconomic characteristics and social capital. Implications for public policies are also discussed.

**Key words:** subjective poverty, social capital, public policies, EU-SILC, multiple correspondence analysis, generalized ordered logit model.

Classification JEL: 132, D10, 138

#### 1–Introduction

Measuring poverty and understanding why it occurs represent, nowadays, a core task for both researchers and policy-makers in advancing towards the eradication of poverty. Poverty is a concept lacking a universally acceptable definition and often faced with competing interpretations: poverty is difficult to define, but it is even harder to measure. Since many years, both researchers and policy-makers have shown an increasing interest towards the subjective (Goedhart et al., 1977; Van Praag et al., 1980) and multidimensional (Massoumi, 1986; Case and Deaton, 2002; Deutsch and Silber, 2005; Van Praag and Ferrer-i-Carbonell, 2005) aspects of poverty arguing that poverty is not an objective status based exclusively on the level of income necessary to satisfy needs, but depends on people's perceptions and feelings, on the resources essential for full participation/inclusion in society and on environmental aspects (Tomlinson, Walker and Williams, 2007; Van Praag and Ferrer-i-Carbonell, 2005).

Social capital plays a crucial role here. According to the most widely accepted definition suggested by the World Bank Social Capital Initiative Program research group, social capital includes the institutions, the relationships, the attitudes and values that govern interactions among people and contribute to economic and social development (Grootaert and van Bastelaer, 2002). This definition synthesizes the different points of view expressed by Putnam (1993), Coleman

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(1990), Olson (1982) and North (1990) and implies that living in a society characterized by model and cooperative behaviour, and where trust replaces suspicion and fear, can have a systematic positive effect on individuals' perception of poverty, as their socioeconomic vulnerability is reduced as well as the resources they need to deal with risk and to avert major losses (Helliwell, 2001).

Several empirical studies have shown how and to what extent in Europe selfperceived poverty is associated with household size and type, with available household resources (Van Praag and Van der Sar, 1988; Ravaillon and Lokshin, 2002; Castilla, 2010), with individual and household socioeconomic characteristics (i.e. gender, age, employment status, education, tenure status, the area of residence) (Ravaillon and Lokshin, 2002; Stanovnik and Verbic, 2004; Istat, 2008; Isae, 2009). Limited attention has been, instead, devoted to the analysis of the relationships with household and community social capital endowment despite its growing importance as a major determinant of economic well-being<sup>1</sup>at micro and macro level that has increased its implications in social policy a sa tool to achieve better outcomes of traditional public policies for poverty reduction. The mechanism through which social capital is said to reduce poverty can be summarized as follows:

*i)* at the micro level, social ties and interpersonal trust facilitate the flow of technical information and knowledge that help to reduce economic transactions costs (Barr, 2000) and ameliorate conventional resource constraint - such as labour(Coleman et al., 1966; Granovetter, 1995; Fernandez et al., 2000), and credit market access or credit limitations - thus reducing the vulnerability of households to poverty (Knack, 1999);

*ii)* at the macro level, social engagement and civic responsibility can also strengthen democratic governance (Almond and Verba, 1963), a mix of norms and sanctions can control defection and dishonesty (Bebbington and Perreault, 1999) and improve the efficiency and honesty of public administration (Putnam, 1993; Fukuyama, 1995) and economic policies (Easterly and Levine, 1997). Moreover, social capital can be viewed as a form of asset embedded in social structures and relationships with a productive capacity that can be extended beyond generating economic returns to providing useful benefits for attaining many other different goals (Knack and Keefer, 1997) [i.e. human capital accumulation (Galor and Zeira 1993; Coleman, 1988), social efficient outcomes such as social cohesion (Reimer,2002; Green et al., 2003) and social capability (Abramovitz, 1986; Abramovitz and David, 1996), and so on]<sup>2</sup>.

Taking into account these observations, this paper aims to show, also through a cross-country comparative analysis, to what extent self-perceived poverty in European countries is associated with specific household socioeconomic characteristics and particular aspects of household/community social capital endowment in order to disclose the primary risk factors of family poverty. Such evidence would help central and local governments to define those economic and social goals which should receive more attention by poverty reduction policies.

In order to pursue this aim, a multiple correspondence analysis (MCA) and a generalized ordered logit model are carried out. The empirical analysis is based on the 2008 EU-SILC survey and the Eurostat statistics database.

The paper is organized as follows: section 2 describes the data and the methodology used, section 3 presents the results and section 4 provides some concluding remarks and future research prospects.

<sup>&</sup>lt;sup>1</sup> In this paper the term *economic well-being* is used as a synonymous for *economic conditions*.

<sup>&</sup>lt;sup>2</sup>However, it is worth noting that implications of social capital are not always the same everywhere. Actually, as Krishna and Shrader (1999) pointed out: "What is social capital in one context may be *unsocial* capital in another [....]".

# 2 - Data and methodology

In order to study associations between subjective poverty and household socioeconomic characteristics and social capital, we carry out a multiple correspondence analysis (MCA) and a generalized ordered logit model on data from the 2008 cross-sectional EU-SILC survey and Eurostat statistics database<sup>3</sup>.

The household subjective poverty is expressed by the proxy categorical variable *ability to make ends meet* (with great difficulty; with difficulty; with some difficulty; fairly easily; easily; very easily).

The multiple correspondence analysis (MCA), is carried out so as to depict the main associations between the household subjective poverty proxy (set as supplementary variable) and two sets of active variables describing, respectively,

1) the respondent/household socioeconomic characteristics<sup>4</sup>: age, gender, marital status, education, employment status, work intensity status, branch of activity, at risk of poverty and social exclusion, general health, house/flat size, tenure status, dwelling type, household type, equivalised disposable income, poverty and deprivation indicator, financial burden of housing cost, debts, family/children social exclusion, housing, cash and alimonies received;

2) the household/community social capital endowment<sup>5</sup>. The proxy variables selected are indicators of the level of:

- *social behaviour (SB)*, population socioeconomic characteristics that facilitate/hinder the development of social and economic cooperative behaviour;

- *social relationships (SR)*, measures of the potential and actual degree of social relationships;

- some specific *territorial and environmental characteristics* which are significant determinants of social capital formation.

A complete list of all variables is provided in the Appendix (Table1A and 2A)

Subsequently, we estimate a generalized ordered logit model (Williams, 2006) in order to highlight: a) to what extent perception of poverty in Europe is affected by the respondent/household socioeconomic characteristics and by household/community social capital endowment; b) which of the social capital components has a higher impact on subjective poverty and can be regarded as a primary risk factor in household poverty status.

In order to better capture and emphasize the ties between the ordered responses and the predictors, the dependent variable "ability to make ends meet" has been recoded in the following way:

- 1. With great difficulty
- 2. With difficulty

1. With difficulty

<sup>3</sup> EU-SILC is the Eurostat project on Income and Living Conditions which involves all the 27 European countries. EU-SILC is the reference source for comparative studies on income distribution, poverty and social exclusion at European level (Santini and De Pascale, 2012) with the purpose of monitoring household economic and social conditions for aware planning of economic and social policies (Clemenceau et al., 2006). EU-SILC provides two types of data, cross-sectional and longitudinal over a four year period (EU-SILC uses a four-years rotational design). The 2008 EU-SILC survey does not include the data for Malta, which can be found from the 2009 wave onwards, however not available yet at the time the paper was written.

<sup>&</sup>lt;sup>4</sup>Respondent's socioeconomic characteristics are included as active variables to take into account the features of the person who answers, on behalf of the whole family, to the household guestionnaire and, in particular, to the question on *ability to make ends meet*.

<sup>&</sup>lt;sup>5</sup>Despite some shortcomings, the EU-SILC cross-sectional survey and the Eurostat statistics database represent an important reference source for comparative studies aiming at measuring the effect of social capital on household economic well-being, especially because they provide comparable and high quality cross-sectional indicators for all the 27 European countries (see, for further details, Santini and De Pascale, 2012a,b).Social capital indicators, when available, are measured both at household and societal level in order to take into account simultaneously the families status and that of the community they belong to.

| 3. With some difficulty<br>4. Fairly easily | 2. Fairly |
|---------------------------------------------|-----------|
| 5. Easily<br>6. Very easily}                | 3. Easily |

The predictors are the majority of the above mentioned sets of active variables, describing, respectively, the respondent/household socioeconomic characteristics and the household/community social capital endowment<sup>6</sup>. In particular, taking into account Table 2Awe consider the following five social capital indicators:

i) two simple indicators of social behaviour;

ii) one composite index of social relationships (computed as the arithmetic mean of variables on possession of pc, number of hours of childcare, number of family workers in family business);

iii) two territorial context composite indicators: the first one at household level (it is the arithmetic mean of EU-SILC variables on overcrowding, housing and environmental conditions - leaking roof, darkness, noise, pollution) and the second one at community level (itis the arithmetic mean of Eurostat indices on housing deprivation rate, different aspects of environmental pollution, grime or other environmental problems.)

# 3 –Results

As regards the multiple correspondence analysis, the variability explained by the first four factorial axes is 85,4% (computed with the corrections formula due to Benzecri,1979). The interpretation of the results will be limited to the first, second and fourth factorial axis as they seem to give answer to the questions this paper aims to investigate<sup>7</sup>. The detailed description of each factorial axis is provided by Table 1,2 and 3 and a synthetic view of the results is presented in Figures 1,2 and 3.

Subjective poverty is the respondent's assessment of own household economic well-being and aims to capture the inherent subjectivity and multidimensionality of poverty. Actually, the results of the MCA show that in Europe, households subjective poverty is associated with at least three aspects:

- a. the household economic conditions;
- b. the degree of family and social distress;

c. the level of community social capital endowment.

In particular:

a) the *household economic conditions* go through different variables such as household disposable income, deprivation and work intensity status, size and type, some respondent socioeconomic characteristics (i.e. age, marital, education, employment and health status), and those household/community social capital endowment indicators strongly associated with household economic well-being, as clearly shown by the first factorial axis (see Table 1 and Fig.1). As a matter of fact, difficulties in making ends meet prevails in severely deprived households with low equivalised disposable income and work intensity status, whose respondent is

<sup>&</sup>lt;sup>6</sup>Some of the variables listed in the Appendix are not statistically significant and thus they are not included as predictors in the generalized ordered logit model discussed in section 3. These variables are sex, work intensity status, branch of activity and health of respondent, dwelling type, household size, household type, financial burden of repayment of debts, allowances, housing allowances, regular inter-household cash received, alimonies received, income received by people aged under 16.

<sup>&</sup>lt;sup>7</sup>The third factorial axis relates to the contrasts between extreme evaluation of self-perception of poverty (with great difficulty and very easily) and the average ones, while the main aim of the paper is to focus on the contrasts between high and low levels of self-perceived poverty.

mostly 60 years or over, widowed, low educated, unemployed or retired/inactive, at risk of poverty and reporting bad health. Moreover, difficulty in making ends meet is associated withmodest housing conditions<sup>8</sup>,as well as scarce availability of devices which helps to keep alive both real and virtual relationships<sup>9</sup> and low environmental quality<sup>10</sup>. The results are consistent with those obtained in previous empirical studies. In fact, one of the most common results found in the literature is the strong association between household poverty and income (Easterlin, 2001) and, as extensively proved by a recent research (Eurostat,2010),between poverty and poor housing and environmental conditions, concepts which shouldbe used together to analyze different aspects of households' and individuals' economic well-being.

The association observed on the first factorial axis between self-perceived poverty and low levels of crime confirms the results of Fraser (2011) which analyzes the relationships between crime and poverty status in the27 European countries. Actually, contrary o expectations and trends observed in the past, poverty is *not* linked to higher crime rates and it may even suggest the opposite. The poorest countries, those with higher inequality of wealth and not completely developed in terms of important services, have *less* crime than the wealthier countries. In fact, higher crime rates in wealthier countries seem to depend on:

- the major interest of transnational organized crime towards these countries(UNODOC, 2010);
- the greater propensity of the population living in developed countries to denounce criminal events to the authorities of jurisdiction.

b) The *degree of family and social distress* goes through numerous variables such as household disposable income, type, size and working intensity status, housing conditions, entitlement to family allowances, some respondent's socioeconomic characteristics (i.e. age and employment status) and some components of household social capital endowment, such as the support for child care which represent an important resource available to poor people who are often described as *deficient* along other vectors (Grootaert and van Bastelaer, 2001;Woolcock, 2002).This aspect is well summarized by the second factorial axis(see Table 2 and Fig.1): difficulty in making ends meet prevails in low income (1<sup>st</sup> and 2<sup>nd</sup> quintile), large size and overcrowded households with dependent children and a full working intensity status, entitled to family allowances, suffering from a low quality of environment and relying on support for child care<sup>11</sup>, thus compensating their socioeconomic vulnerability. The respondent is generally between 35 and 50 years old and fully employed.

c) The *level of community social capital endowment* goes through social behaviour and those territorial and environmental characteristics which are significant determinants of social capital formation. This aspect is well summarized by the fourth factorial axis(see Table 3 and Fig.2 and 3): actually, self-perception of poverty tends to improve medium size households with very low income (1<sup>st</sup> quintile) and living in areas characterized by those environmental conditions which can exert a strong positive effect on the quality of family and community relationships, such as: low crime<sup>12</sup>, good environment of the dwelling<sup>13</sup>, low

<sup>&</sup>lt;sup>8</sup> Specifically, small house size measured by number of rooms.

<sup>&</sup>lt;sup>9</sup> Possession of personal computer.

<sup>&</sup>lt;sup>10</sup> Low environmental quality stands for high overcrowding ,housing deprivation rate (% of total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames of floor) and urban population exposure to air pollution by particulate matter.
<sup>11</sup>Support for childcare is expressed by the number of hours of child care by grandparents, others

<sup>&</sup>quot;Support for childcare is expressed by the number of hours of child care by grandparents, others household members (outside parents), other relatives, friends or neighbors free of charge (per household member if less than 12 years old).

<sup>&</sup>lt;sup>12</sup>Crime recorded by the police: total crime (number of crimes per 100 inhabitants).

<sup>&</sup>lt;sup>13</sup> Environment of the dwelling: % of total population suffering noise from neighbors or from the street.

greenhouse gas emission and urban population exposure to air pollution by particulate matter<sup>14</sup>.

The above results can help to identify suitable poverty reduction strategies. As a matter of fact, policies aiming at poverty reduction in countries characterized, on average, by poor economic conditions (on the left side of Fig.2) should move into two different directions. In particular, in countries such as Lithuania, Bulgaria, Romania, Estonia, Poland, Latvia, Hungary and Slovakia, where low levels of economic well-being and high social capital endowment prevail (lower quadrant), traditional welfare programs based on income support mechanism are recommended. In countries such as Italy, Portugal, Greece, Cyprus, Slovenia Czech Republic, characterized by poor household economic well-being but also by low social capital endowment (upper quadrant), poverty reduction policies can be effective if they reconcile traditional income support programs with measures facilitating the development of desirable forms of social capital in particular, those which strengthen mutual trust and foster model behavior (i.e. reducing criminality and improving housing and environmental conditions).

Actually, living in a society characterized by economic and social cooperative behaviour, and where trust replaces suspicion and fear, can have a systematic positive effect on households' economic well-being as their socio-economic vulnerability is reduced, as well as the resources they need to deal with risk and avert major losses.

The important role of household/community social capital endowment in selfperception of poverty is also confirmed by the generalized ordered logit model estimates<sup>15</sup>.

As we can see from Table 4, almost all the estimated regression parameters are significant and the global performance of the model can be judged satisfactory: the overall percent correctly predicted is 69.36% and it goes from 46.18% for *easily* category, to 61.1% for *difficulty*, to 81.05 for *fairly*.

Furthermore, the marginal effect of each independent variable, controlling for the remaining ones, is coherent with expectations. So, for example, probability of a *fair ability to make ends meet* and, to a lesser extent, probability of *easy* category increase if health status is good, the dwelling is owned and there isn't severely materially deprivation. Conversely, probability of *difficulty* category clearly reduces if respondents are working, while grows in presence of debts and if housing cost is a heavy burden. The main effect on all the three probabilities is due to education (see Fig. 4) and employment status (see Fig. 5) while increasing equivalised disposable income mostly gives rise to probability of *easy* category (see Fig. 6).

The most interesting result is that all social capital indicators show significant effects on the response variable. In particular: probability of *difficulty* is higher when problems of crime, violence or vandalism are perceived (see Fig. 7), or if the normalized crime rate is high (see Fig. 8), while it clearly decreases at growing of social relationship index (see Fig. 9), or of territorial context index at household (see Fig. 10) and community (see Fig. 11) level. Conversely, probability of *easy* 

<sup>&</sup>lt;sup>14</sup>Greenhouse gas emission (in CO2 equivalent); urban population exposure to air pollution by particulate matter (micrograms per cubic meter).

<sup>&</sup>lt;sup>15</sup>A generalized ordered logit model has to be applied as one of the main assumptions in ordered response models, the so called *proportional odds* assumption, is not satisfied here. Furthermore, as to the possible reverse causality between household economic well-being and social capital endowment (social capital influences household well-being, because it generates and facilitates income-related knowledge and information flows; conversely, income levels are also expected to determine many forms of social capital endowment being investigated), we can observe that, conditionally on disposable income and the other covariates measuring household economic conditions, social capital indicators donot depend on self-perception of poverty and can be considered exogenous unless we ascertain the problem of omitted variables in measuring social capital. In this case the specification should be extended as to include instrumental variables ; this problem will be faced in our future research .

appears less conditioned by social capital indicators (it appears much more sensible to equivalised disposable income and housing costs).

### 4– Conclusions

This paper aims to show to what extent self-perceived poverty in European countries is associated with household socioeconomic characteristics and household/community social capital endowment in order to disclose the primary risk factors of family poverty.

The results of the multiple correspondence analysis show that subjective poverty is associated at least with three aspects:

a. the household economic conditions;

b. the degree of family and social distress;

c .the level of community social capital endowment.

Thus, the analysis proves both one of the most well-established results found in empirical literature (the strong link between household poverty status and income) and the significant association between social capital and self-perception of poverty.

These results are confirmed by the generalized ordered logit model so to disclose the primary risk factors of family poverty status: both household characteristics and household/community social capital endowment play a crucial role in selfperception of poverty.

Therefore, in many countries poverty reduction policies should enhance household economic well-being not only through traditional income support measures, but also facilitating the development of desirable forms of social capital which strengthen mutual trust and foster model behavior (i.e. reducing criminality and improving housing and environmental conditions). In other words, society characterized by economic and social cooperative behaviour can improve households' economic well-being.

If the EU-SILC survey and Eurostat statistics database would provide more social capital indicators with a greater territorial detail, associations between social capital and household poverty could be entirely described, thus helping considerably policy-makers to promote suitable poverty reduction strategies.

As a matter of fact, in EU countries almost 84 million people live at risk of poverty, facing, depending on the country, a variety of problems from not having enough money to spend on food and clothes to suffering poor housing conditions and even homelessness; from having to cope with limited lifestyle choices that may lead to social exclusion to living in areas where social capital is deteriorating. The European Union has joined forces with its Member States supporting numerous initiatives among which the *2010 European Year For Combating Poverty and Social Exclusion:* its objective was to raise public awareness about these issues and renew the political commitment of the EU and its Member States to combat poverty and social exclusion.

From the statistical point of view, further research will be directed to cope with the possible endogeneity of social capital indicators and aimed at obtaining consistent estimates and more reliable results.

| COUNTRY<br>Exposure to air pollution by particulate matter | Spain                                      |
|------------------------------------------------------------|--------------------------------------------|
| COUNTRY<br>SEVERELY MAT DEPRIVED HOUSEHOLD                 | Cyprus<br>NO                               |
| Crime rate                                                 | Medium                                     |
| BARYCENTER                                                 |                                            |
| <u> </u>                                                   | - 1                                        |
| AGE<br>EOUIVALISED DISPOSABLE INCOME                       | 55-59<br>3 <sup>rd</sup> quintile          |
| EDUCATION                                                  | medium                                     |
| MARITAL STATUS                                             | Separated&divorced                         |
| COUNTRY                                                    | Czeck Republic                             |
| ME                                                         | Some difficulty                            |
| Greenhouse gas emission                                    | High                                       |
| ROOMS                                                      | 3 rooms                                    |
| BRANCH                                                     | Agriculture                                |
| COUNTRY                                                    | Estonia                                    |
| Overcrowding rate                                          | Medium                                     |
| COUNTRY<br>AGE                                             | Portugal<br>60-64                          |
| EQUIVALISED DISPOSABLE INCOME                              | 2 <sup>nd</sup> quintile                   |
| COUNTRY                                                    | Slovenia                                   |
| WORKINTENSITY STATUS                                       | 0 - 0.5                                    |
| COUNTRY<br>EMPLOYMENT STATUS                               | Greece<br>inactive                         |
| COUNTRY                                                    | Slovakia                                   |
| HEALTH                                                     | fair                                       |
| EMPLOYMENT STATUS                                          | unemployed                                 |
| Crime rate                                                 | Low                                        |
| HOUSEHOLD TYPE<br>COUNTRY                                  | 1 person<br>Italy                          |
|                                                            | Difficulty                                 |
| AME                                                        |                                            |
| ROOMS<br>HOUSEHOLD TYPE                                    | 2 rooms<br>2adults >65                     |
| House deprivation                                          | High                                       |
| Overcrowding rate                                          | High                                       |
| RISK POVERTY                                               | povertyrisk                                |
| COUNTRY                                                    | Lithuania                                  |
| COUNTRY                                                    | Poland                                     |
| AGE<br>Exposure to air pollution by particulate matter     | 65-79<br>High                              |
| ACE                                                        |                                            |
| Greenhouse gas emission (in CO2 equivalent)                | Low                                        |
| COUNTRY                                                    | Hungary                                    |
| PC                                                         | NO                                         |
| EMPLOYMENT STATUS                                          | retired                                    |
| EDUCATION<br>WORK INTENSITY STATUS                         | Low<br>0                                   |
| LWI                                                        | Yes                                        |
| POVERTY INDICATOR                                          | At risk                                    |
| ROOMS                                                      | 1 room                                     |
| COUNTRY                                                    | Latvia                                     |
| AME                                                        | Great difficulty                           |
| HEALTH<br>EQUIVALISED DISPOSABLE INCOME                    | Bad or verybad<br>1 <sup>st</sup> quintile |
| AGE                                                        | 80+                                        |
| MARITAL STATUS                                             | Widowed                                    |
| COUNTRY                                                    | Romania                                    |
| DEPRIVATION<br>COUNTRY                                     | Severelydeprived<br>Bulgaria               |
| DEDDIVATION                                                | riskpoverty&deprive                        |

Table1 - Description of the factorial axis :ascending order of the coordinates of

| MARITAL STATUS                                  | Married                     |
|-------------------------------------------------|-----------------------------|
| POVERTY INDICATOR                               | Notatrisk                   |
| AGE                                             | <24                         |
| COUNTRY                                         | Austria                     |
| HOUSEHOLD TYPE                                  | Single and dc               |
| AGE                                             | 50-54                       |
| WORK INTENSITY STATUS                           | 0.5 - 1                     |
| MARITAL STATUS                                  | Nevermarried                |
| HEALTH                                          | good                        |
| RISK POVERTY                                    | NO                          |
| Housing deprivation rate                        | Medium                      |
| HOUSEHOLD TYPE                                  | 2adults<65                  |
| BRANCH                                          | Hotels<br>Ireland           |
| COUNTRY                                         |                             |
| AME                                             | Fairlyeasily                |
| Greenhouse gas emission                         | Medium                      |
| Exposure to air pollution by particulate matter | Low                         |
| AGE                                             | 45-49                       |
| Housing deprivation rate                        | Low                         |
| COUNTRY                                         | Germany                     |
| ROOMS                                           | 5 rooms                     |
| AGE                                             | 25-29                       |
| BRANCH                                          | Industry                    |
| BRANCH<br>PC                                    | Trade                       |
| PC<br>EOUIVALISED DISPOSABLE INCOME             | YES<br>4th quintile         |
| LWI                                             | Aui quinuie<br>NO           |
| HOUSEHOLD TYPE                                  | 2adults &1dc                |
| COUNTRY                                         | France                      |
| EDUCATION                                       | high                        |
| AGE                                             | 40-44                       |
| AGE                                             | 30-34                       |
| BRANCH                                          | Construction                |
| Overcrowding rate                               | Low                         |
| AGE                                             | 35-39                       |
| BRANCH                                          | Transports                  |
| WORK INTENSITY STATUS                           | 1                           |
| COUNTRY                                         | Belgium                     |
| BRANCH                                          | Education                   |
| ROOMS                                           | 6+ rooms                    |
| COUNTRY                                         | Luxembourg                  |
| AME                                             | Easily                      |
| HEALTH                                          | verygood                    |
| BRANCH                                          | PA<br>Creat Britain         |
| COUNTRY<br>HOUSEHOLD TYPE                       | Great Britain               |
|                                                 | 2adults &3dc                |
| HOUSEHOLD TYPE<br>BRANCH                        | 2adults &2dc<br>Real estate |
| Crime rate                                      | High                        |
| BRANCH                                          | Health                      |
| EQUIVALISED DISPOSABLE INCOME                   | 5th quintile                |
| BRANCH                                          | Financial i                 |
| COUNTRY                                         | Netherlands                 |
| AME                                             | Veryeasily                  |
| COUNTRY                                         | Sweden                      |
| COUNTRY                                         | Finland                     |
| COUNTRY                                         | Denmark                     |
|                                                 |                             |

| Table2- Description of the factorial axis:      | ascending order of the   |
|-------------------------------------------------|--------------------------|
| coordinates of most significant items on the se | econd factorial axis.    |
| Child care                                      | High                     |
| COUNTRY                                         | Bulgaria                 |
| Overcrowdedhousehold                            | Yes                      |
| COUNTRY                                         | Latvia                   |
| Child care                                      | Medium                   |
| COUNTRY                                         | Romania                  |
| COUNTRY<br>COUNTRY                              | Slovenia<br>Poland       |
| COUNTRY                                         | Hungary                  |
| Overcrowding rate                               | High                     |
| HOUSEHOLD TYPE                                  | Single&dc                |
| COUNTRY                                         | Slovakia                 |
| BRANCH                                          | Agriculture              |
| Child care                                      | None                     |
| FAMILY-CHILDREN ALLOWANCES                      | Yes                      |
| COUNTRY                                         | Lithuania                |
| HOUSEHOLD TYPE                                  | 2adults &3dc             |
| HOUSEHOLD TYPE                                  | 2adults &2dc             |
| AGE                                             | 35-39                    |
| COUNTRY                                         | Estonia                  |
| Child care                                      | Low                      |
| Housing deprivation rate<br>HOUSEHOLD TYPE      | High<br>2adults &1dc     |
| AGE                                             | 40-44                    |
| EOUIVALISED DISPOSABLE INCOME                   | 1 <sup>st</sup> quintile |
| Exposure to air pollution by particulate        | i quintite               |
| matter                                          | High                     |
| BRANCH                                          | Industry                 |
| AGE                                             | 30-34                    |
| BRANCH                                          | Trade                    |
| BRANCH                                          | Hotels                   |
| AGE                                             | 45-49                    |
| BRANCH                                          | Education                |
| LWI                                             | NO                       |
| BRANCH                                          | Transports               |
| EMPLOYMENT STATUS                               | working                  |
| Crime rate                                      | Low                      |
| AME                                             | Great difficulty         |
| WORK INTENSITY STATUS                           | 0.5 - 1                  |
| BRANCH                                          | PA                       |
| BRANCH                                          | Construction             |
| EMPLOYMENT STATUS                               | unemployed               |
| COUNTRY<br>WORK INTENSITY STATUS                | <b>Italy</b><br>0 - 0.5  |
| AGE                                             | 25-29                    |
| AGE<br>WORK INTENSITY STATUS                    | 25-29                    |
| AGE                                             | 50-54                    |
| AME                                             | Difficulty               |
| BRANCH                                          | Financial i              |
| EOUIVALISED DISPOSABLE INCOME                   | $2^{nd}$ quintile        |
| AGE                                             | <24 <24                  |
| BRANCH                                          | Real estate              |
| BRANCH                                          | Health                   |
| AME                                             | Some difficulty          |
| COUNTRY                                         | Cyprus                   |
| Overcrowding rate                               | Medium                   |
| ~                                               | Greece                   |
| COUNTRY                                         |                          |
| BARYCENTER                                      |                          |
| AGE                                             | 55-59                    |

| LWI                                                                                                                                                                                                                                                                                                                                          | Yes                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Crime rate                                                                                                                                                                                                                                                                                                                                   | Medium                                                                                                                                                                                             |
| EMPLOYMENT STATUS                                                                                                                                                                                                                                                                                                                            | inactive                                                                                                                                                                                           |
| COUNTRY                                                                                                                                                                                                                                                                                                                                      | Austria                                                                                                                                                                                            |
| Exposure to air pollution by particulate matter                                                                                                                                                                                                                                                                                              | Medium                                                                                                                                                                                             |
| COUNTRY<br>HOUSEHOLD TYPE                                                                                                                                                                                                                                                                                                                    | Czeck Republic<br>2adults<65                                                                                                                                                                       |
| AME                                                                                                                                                                                                                                                                                                                                          | Fairlyeasily                                                                                                                                                                                       |
| EQUIVALISED DISPOSABLE INCOME                                                                                                                                                                                                                                                                                                                | 3 <sup>rd</sup> quintile                                                                                                                                                                           |
| Overcrowdedhousehold                                                                                                                                                                                                                                                                                                                         | NO                                                                                                                                                                                                 |
| Exposure to air pollution by particulate                                                                                                                                                                                                                                                                                                     | 110                                                                                                                                                                                                |
| matter                                                                                                                                                                                                                                                                                                                                       | Low                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                              | 20.0                                                                                                                                                                                               |
| FAMILY-CHILDREN ALLOWANCES                                                                                                                                                                                                                                                                                                                   | NO                                                                                                                                                                                                 |
| COUNTRY                                                                                                                                                                                                                                                                                                                                      | Luxembourg                                                                                                                                                                                         |
| EQUIVALISED DISPOSABLE INCOME                                                                                                                                                                                                                                                                                                                | 4 <sup>th</sup> quintile                                                                                                                                                                           |
| COUNTRY                                                                                                                                                                                                                                                                                                                                      | Portugal                                                                                                                                                                                           |
| Housing deprivation rate                                                                                                                                                                                                                                                                                                                     | Medium                                                                                                                                                                                             |
| COUNTRY                                                                                                                                                                                                                                                                                                                                      | Spain                                                                                                                                                                                              |
| EQUIVALISED DISPOSABLE INCOME                                                                                                                                                                                                                                                                                                                | 5 <sup>th</sup> quintile                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                              | 5 quintile                                                                                                                                                                                         |
| Housing deprivation rate                                                                                                                                                                                                                                                                                                                     | Low                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                              | Low<br>0                                                                                                                                                                                           |
| Housing deprivation rate                                                                                                                                                                                                                                                                                                                     | Low                                                                                                                                                                                                |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE                                                                                                                                                                                                                                                                   | Low<br>0<br>Easily<br>1person                                                                                                                                                                      |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY                                                                                                                                                                                                                                                        | Low<br>0<br>Easily<br>1person<br>Germany                                                                                                                                                           |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE                                                                                                                                                                                                                                                 | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64                                                                                                                                                  |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate                                                                                                                                                                                                                            | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low                                                                                                                                           |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY                                                                                                                                                                                                                 | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden                                                                                                                                 |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate                                                                                                                                                                                                   | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden<br>High                                                                                                                         |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY                                                                                                                                                                                        | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain                                                                                                        |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY                                                                                                                                                                             | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France                                                                                              |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY                                                                                                                                                       | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark                                                                                   |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>AME                                                                                                                                                | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily                                                                     |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>AME<br>COUNTRY                                                                                                                                                | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland                                                          |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>AME<br>COUNTRY<br>COUNTRY<br>COUNTRY                                                                                                                          | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium                                               |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY                                                                                     | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium<br>Finland                                    |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>EMPLOYMENT STATUS                                                                                                            | Low<br>0<br>Easily<br>1person<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium<br>Finland<br>retired                         |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>EMPLOYMENT STATUS<br>COUNTRY                                                                                      | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium<br>Finland<br>retired<br>Netherlands          |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>AGE | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium<br>Finland<br>retired<br>Netherlands<br>65-79 |
| Housing deprivation rate<br>WORK INTENSITY STATUS<br>AME<br>HOUSEHOLD TYPE<br>COUNTRY<br>AGE<br>Overcrowding rate<br>COUNTRY<br>Crime rate<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>COUNTRY<br>EMPLOYMENT STATUS<br>COUNTRY                                                                                      | Low<br>0<br>Easily<br>Iperson<br>Germany<br>60-64<br>Low<br>Sweden<br>High<br>Great Britain<br>France<br>Denmark<br>Veryeasily<br>Ireland<br>Belgium<br>Finland<br>retired<br>Netherlands          |

| oordinates of most significant items on the fo     | urth factorial axis.     | DWELLYNĞ TYPE                            | Building > 10                   |
|----------------------------------------------------|--------------------------|------------------------------------------|---------------------------------|
| COUNTRY                                            | Lithuania                | LWI                                      | NO                              |
| COUNTRY                                            | Estonia                  | AGE                                      | 45-49                           |
| COUNTRY                                            | Bulgaria                 | HOUSEHOLD TYPE                           | 2adults &1dc                    |
| COUNTRY                                            | Romania                  | COUNTRY                                  | Slovenia                        |
| Greenhouse gas emission                            | Low                      | HOUSEHOLD TYPE                           | 2adults &2dc                    |
| COUNTRY                                            | Poland                   | AME                                      | Difficulty                      |
| COUNTRY                                            | Hungary                  | Exposure to air pollution by particulate | v                               |
| COUNTRY                                            | Latvia                   | matter                                   | Medium                          |
| COUNTRY                                            | Slovakia                 | matter                                   | Wiedrum                         |
| Exposure to air pollution by particula             |                          | HOUSEHOLD TYPE                           | 2adults &3dc                    |
| natter                                             | Low                      | HOUSEHOLD TYPE                           | 1persom                         |
|                                                    | 20.0                     | AGE                                      | 40-44                           |
| COUNTRY                                            | Sweden                   | EQUIVALISED DISPOSABLE INCOME            | 40-44<br>4th quintile           |
| Crime rate                                         | Low                      | COUNTRY                                  | Cyprus                          |
| EQUIVALISED DISPOSABLE INCOME                      | 1 <sup>st</sup> quintile | DWELLYNG TYPE                            | Semi-detached                   |
| HOUSEHOLD TYPE                                     | 2adults>65               | AGE                                      | 35-39                           |
| COUNTRY                                            | Finland                  | COUNTRY                                  | France                          |
| DWELLYNG TYPE                                      | Detached                 | AGE                                      | <b>France</b><br>30-34          |
| Environment of the dwelling                        | Good                     | COUNTRY                                  | Belgium                         |
| AGE                                                | 65-79                    | RISK POVERTY                             | YES                             |
| EMPLOYMENT STATUS                                  | retired                  | COUNTRY                                  | Greece                          |
|                                                    |                          | TENURE STATUS                            | Reduced_free                    |
| AME                                                | Veryeasily               |                                          |                                 |
| COUNTRY                                            | Ireland                  | HOUSING COST                             | heavyburden<br>25-29            |
| COUNTRY                                            | Denmark                  | AGE<br>MARITAL STATUS                    | 25-29<br>Separated&divorced     |
| HOUSING COST                                       | Not a burden             |                                          | Medium                          |
| FENURE STATUS                                      | Owner                    | Crime rate                               | Nevermarried                    |
| MARITAL STATUS                                     | Married                  | MARITAL STATUS                           |                                 |
| AGE                                                | 60-64                    | Environment of the dwelling              | Bad<br>3 <sup>rd</sup> quintile |
|                                                    |                          | EQUIVALISED DISPOSABLE INCOME            | 3 <sup>rd</sup> quintile        |
| MARITAL STATUS                                     | Widowed                  | Greenhouse gas emission                  | High                            |
| ALIMONIES                                          | NO                       |                                          | 5                               |
| RISK POVERTY                                       | NO                       | AME                                      | Great difficulty                |
| EQUIVALISED DISPOSABLE INCOME                      | 5th quintile             | COUNTRY                                  | Netherlands                     |
| HOUSING COST                                       | somewhat a burden        | POVERTY INDICATOR                        | At risk                         |
| HOUSEHOLD TYPE                                     | 2adults <65              | COUNTRY                                  | Luxembourg                      |
| AME                                                | Fairlyeasily             | EMPLOYMENT STATUS                        | inactive                        |
| AGE                                                | 80+                      | COUNTRY                                  | Austria                         |
| AGE<br>POVERTY INDICATOR                           | 80+<br>Notatrisk         | COUNTRY                                  | Germany                         |
| COUNTRY                                            | Great Britain            | AGE                                      | <24                             |
| COUNTRY                                            | Czeck Republic           | DWELLYNG TYPE                            | Building < 10                   |
|                                                    |                          | COUNTRY                                  | Portugal                        |
| AME                                                | Easily                   | COUNTRY                                  | Spain                           |
| AGE                                                | 50-54                    | TENURE STATUS                            | Tenant                          |
| AME                                                | Some difficulty          | COUNTRY                                  | Italy                           |
| EMPLOYMENT STATUS                                  | working                  | EMPLOYMENT STATUS                        | unemployed                      |
| EMPLOYMENT STATUS<br>EQUIVALISED DISPOSABLE INCOME | 2nd quintile             | RISK POVERTY                             | riskpoverty&dep                 |
| Environment of the dwelling                        | Medium                   | HOUSEHOLD TYPE                           | Single&dc                       |
| Environment of the uwening                         | 55-59                    | LWI                                      | YES                             |
| AGE                                                |                          |                                          |                                 |



Fig.1 Multiple Correspondence Analysis : projections of supplementary variables on F1 and F2

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Fig. 2 Multiple Correspondence Analysis : projections of supplementary variables on F1 and F4



### Fig. 3 Multiple Correspondence Analysis : projections of supplementary variables on F2 and F4

| Predictors<br>(base category)                                          | Categories                      | Coeff. | S.E.   | z      | P>   |
|------------------------------------------------------------------------|---------------------------------|--------|--------|--------|------|
| - ••                                                                   | 25-29 years                     | -0.149 | 0.038  | -3.89  | 0.00 |
|                                                                        | 30-34 years                     | -0.226 | 0.041  | -5.49  | 0.00 |
|                                                                        | 35-39 years                     | -0.209 | 0.037  | -5.70  | 0.00 |
|                                                                        | 40-44 years                     | -0.211 | 0.037  | -5.78  | 0.00 |
|                                                                        | 45-49 years                     | -0.253 | 0.040  | -6.33  | 0.00 |
| <i>Age</i> (≤24 years)                                                 | 50-54 years                     | -0.205 | 0.041  | -5.04  | 0.00 |
|                                                                        | 55-59 years                     | -0.142 | 0.042  | -3.39  | 0.00 |
|                                                                        | 60-64 years                     | -0.097 | 0.044  | -2.19  | 0.02 |
|                                                                        | 65-79 years                     | 0.064  | 0.045  | 1.42   | 0.15 |
|                                                                        | 80+ years                       | 0.218  | 0.052  | 4.20   | 0.00 |
|                                                                        | married                         | 0.100  | 0.019  | 5.23   | 0.00 |
| MST: Marital status                                                    | separated or divorced           | -0.204 | 0.021  | -9.62  | 0.00 |
| (never married)                                                        | widowed                         | -0.085 | 0.022  | -3.84  | 0.00 |
|                                                                        | medium education                | 0.421  | 0.018  | 22.77  | 0.00 |
| EDU: Education (low)                                                   | high education                  | 0.791  | 0.024  | 33.06  | 0.00 |
|                                                                        | unemployed                      | -0.491 | 0.029  | -16.73 | 0.00 |
| EMP: Employment                                                        | retired                         | 0.021  | 0.026  | 0.80   | 0.42 |
| status (working)                                                       | inactive                        | -0.090 | 0.022  | -4.17  | 0.00 |
|                                                                        | good                            | 0.215  | 0.021  | 10.03  | 0.00 |
| HTH: Self-perceived                                                    | fair                            | 0.022  | 0.024  | 0.92   | 0.36 |
| health (very good)                                                     | bad and very bad                | -0.383 | 0.028  | -13.89 | 0.00 |
| RISK: Household at                                                     | atrisk of poverty               | -0.176 | 0.034  | -5.19  | 0.00 |
| risk of poverty (not)                                                  | at risk of pov. and deprivation | -0.399 | 0.060  | -6.63  | 0.00 |
|                                                                        | 2 rooms                         | -0.030 | 0.028  | -1.07  | 0.28 |
|                                                                        | 3 rooms                         | 0.001  | 0.030  | 0.03   | 0.98 |
| ROO: Number of                                                         | 4 rooms                         | 0.002  | 0.032  | 0.07   | 0.94 |
| rooms (1)                                                              | 5 rooms                         | 0.058  | 0.035  | 1.67   | 0.09 |
|                                                                        | 6+ rooms                        | 0.132  | 0.037  | 3.54   | 0.00 |
| TST: Tenure status                                                     | tenant                          | -0.214 | 0.022  | -9.64  | 0.00 |
| (owner)                                                                | rented at reduced rate or free  | -0.193 | 0.017  | -11.49 | 0.00 |
| (0                                                                     | semi-detached                   | -0.084 | 0.020  | -4.16  | 0.00 |
| DTY: Dwelling type                                                     | building < 10 apt               | 0.047  | 0.020  | 2.22   | 0.02 |
| (detached)                                                             | building > 10 apt               | 0.123  | 0.018  | 6.92   | 0.00 |
|                                                                        | Il quintile                     | 0.308  | 0.019  | 16.32  | 0.00 |
| HDI: Equivalised                                                       | III quintile                    | 0.495  | 0.010  | 22.12  | 0.00 |
| disposable income                                                      |                                 | 0.951  | 0.026  | 36.67  | 0.00 |
| (I quintile)                                                           | IV quintile<br>V quintile       | 1.651  | 0.033  | 49.79  | 0.00 |
| POI: Poverty indicator                                                 |                                 | -0.063 | 0.037  | -1.72  | 0.08 |
|                                                                        | ally deprived household (not)   | -1.413 | 0.036  | -38.88 | 0.00 |
| HCO: Financial burden of                                               | somewhat a burden               | 1.765  | 0.000  | 126.82 | 0.00 |
| housing costs (heavy)                                                  |                                 | 2.872  | 0.031  | 91.32  | 0.00 |
|                                                                        | not a burden at all             | -0.363 | 0.001  | -23.01 | 0.00 |
| DEB: Household debts (without debts) FAL: Family allowances(no)        |                                 | -0.230 | 0.010  | -16.86 | 0.00 |
|                                                                        |                                 | 0.160  | 0.014  | 8.13   | 0.00 |
| CRH: Crime perceived (yes)                                             |                                 | -0.706 | 0.020  | -24.67 | 0.00 |
| CRC: Crime recorded by the police<br>SR: Social relationship indicator |                                 | 1.018  | 0.029  | 22.00  | 0.00 |
| TCH: Territorial contex                                                |                                 | 0.594  | 0.040  | 16.78  | 0.00 |
| TCC: Territorial contex                                                | 1.432                           | 0.057  | 25.14  | 0.00   |      |
| constant                                                               | 1.702                           | 0.037  | -29.24 | 0.00   |      |

# Table 4 – Generalized ordered logit model estimates

| Predictors<br>(base category)                                                       | Categories                               | Coeff. | S.E.   | z      | P>z   |
|-------------------------------------------------------------------------------------|------------------------------------------|--------|--------|--------|-------|
|                                                                                     | 25-29 years                              | -0.149 | 0.038  | -3.89  | 0.000 |
|                                                                                     | 30-34 years                              | -0.147 | 0.042  | -3.49  | 0.000 |
|                                                                                     | 35-39 years                              | -0.209 | 0.037  | -5.70  | 0.000 |
|                                                                                     | 40-44 years                              | -0.211 | 0.037  | -5.78  | 0.000 |
|                                                                                     | 45-49 years                              | -0.170 | 0.042  | -4.08  | 0.000 |
| <i>Age</i> (≤24 years)                                                              | 50-54 years                              | -0.108 | 0.042  | -2.58  | 0.010 |
|                                                                                     | 55-59 years                              | -0.032 | 0.043  | -0.74  | 0.459 |
|                                                                                     | 60-64 years                              | 0.051  | 0.045  | 1.14   | 0.256 |
|                                                                                     | 65-79 years                              | 0.221  | 0.048  | 4.64   | 0.000 |
|                                                                                     | 80+ years                                | 0.437  | 0.057  | 7.66   | 0.00  |
|                                                                                     | married                                  | 0.022  | 0.019  | 1.12   | 0.26  |
| MST: Marital status                                                                 | separated or divorced                    | -0.204 | 0.021  | -9.62  | 0.00  |
| (never married)                                                                     | widowed                                  | -0.085 | 0.022  | -3.84  | 0.00  |
|                                                                                     | medium education                         | 0.567  | 0.029  | 19.74  | 0.00  |
| EDU: Education (low)                                                                | high education                           | 0.887  | 0.031  | 29.05  | 0.00  |
|                                                                                     | unemployed                               | -0.491 | 0.029  | -16.73 | 0.00  |
| EMP: Employment                                                                     | retired                                  | -0.075 | 0.030  | -2.48  | 0.01  |
| status (working)                                                                    | inactive                                 | 0.060  | 0.026  | 2.27   | 0.02  |
|                                                                                     | good                                     | -0.109 | 0.018  | -5.92  | 0.00  |
| HTH: Self-perceived                                                                 | fair                                     | -0.476 | 0.024  | -20.13 | 0.00  |
| health (very good)                                                                  | bad and very bad                         | -0.657 | 0.037  | -17.84 | 0.00  |
| RISK: Household at                                                                  | atrisk of poverty                        | 0.002  | 0.050  | 0.04   | 0.96  |
| risk of poverty (not)                                                               | at risk of pov. and deprivation          | -0.022 | 0.094  | -0.23  | 0.81  |
|                                                                                     | 2 rooms                                  | -0.030 | 0.028  | -1.07  | 0.28  |
|                                                                                     | 3 rooms                                  | 0.001  | 0.035  | 0.03   | 0.97  |
| ROO: Number of                                                                      | 4 rooms                                  | 0.124  | 0.037  | 3.40   | 0.00  |
| <i>rooms</i> (1)                                                                    |                                          | 0.266  | 0.038  | 6.98   | 0.00  |
|                                                                                     | 5 rooms<br>6+ rooms                      | 0.397  | 0.039  | 10.15  | 0.00  |
| TOTI Tonuro statuo                                                                  |                                          | 0.129  | 0.000  | 5.74   | 0.00  |
| <i>TST: Tenure status</i><br>(owner)                                                | tenant<br>rented at reduced rate or free | -0.193 | 0.020  | -11.49 | 0.00  |
| (00000)                                                                             |                                          | 0.146  | 0.017  | 7.49   | 0.00  |
| DTY: Dwelling type                                                                  | semi-detached<br>building < 10 apt       | 0.140  | 0.015  | 8.91   | 0.00  |
| (detached)                                                                          |                                          | 0.238  | 0.020  | 10.80  | 0.00  |
|                                                                                     | building > 10 apt<br>II quintile         | 0.449  | 0.022  | 11.02  | 0.00  |
| HDI: Equivalised                                                                    |                                          | 0.933  | 0.041  | 23.16  | 0.00  |
| disposable income                                                                   | III quintile                             | 1.423  | 0.040  | 34.48  | 0.00  |
| (I quintile)                                                                        | IV quintile                              | 2.176  | 0.041  | 52.62  | 0.00  |
| POI: Poverty indicator                                                              | V quintile                               | -0.063 | 0.041  | 0.058  | 1.1   |
|                                                                                     | ally deprived household (not)            | -1.413 | -1.870 | 0.126  | -14.8 |
| -                                                                                   |                                          | 1.407  | 0.028  | 51.12  | 0.00  |
| HCO: Financial burden of<br>housing costs (heavy)                                   | somewhat a burden                        | 2.783  | 0.028  | 96.36  | 0.00  |
|                                                                                     | not a burden at all                      | -0.363 | -0.608 | 0.018  | -34.7 |
| DEB: Household debts (without debts)                                                |                                          | -0.230 | -0.808 | 0.018  | -16.8 |
| FAL: Family allowances(no)<br>CRH: Crime perceived (yes)                            |                                          | 0.160  | 0.230  | 0.014  | 3.9   |
| CRH: Crime perceived (yes)<br>CRC: Crime recorded by the police                     |                                          |        | -0.706 |        |       |
| , ,                                                                                 |                                          | -0.706 |        | 0.029  | -24.6 |
| SR: Social relationship indicator                                                   |                                          | 1.018  | 0.725  | 0.058  | 12.5  |
| TCH: Territorial context - household level TCC: Territorial context - country level |                                          | 0.594  | 0.358  | 0.048  | 14.8  |
| www.rennona.contex                                                                  |                                          | 1 4.37 | U 947  | U UD4  | 14.8  |

Number of obs. =197262; Log likelihood = -132696.36; Pseudo  $R^2$ =0.3218

















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### APPENDIX

| Label | Variable name                          | Categories                                                                                                                                     |
|-------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| AGE   | Age                                    | < 24<br>25-29<br>30-34<br>35-39<br>40-44<br>45-49<br>50-54<br>55-59<br>60-64<br>65-79<br>80+                                                   |
| GEN   | Gender                                 | 1 Male<br>2 Female                                                                                                                             |
| MST   | Marital status                         | 1 Never married<br>2 Married<br>3 Separated or divorced<br>4 Widowed                                                                           |
| EDU   | Educational qualification              | 1 Low<br>2 Medium<br>3 High                                                                                                                    |
| ЕМР   | Employment status                      | 1 Working<br>2 Unemployed<br>3 Retired<br>4 inactive                                                                                           |
| LWI   | Low work intensity status              | 0 No LWI<br>1 LWI                                                                                                                              |
| нтн   | General health                         | 1 Very good<br>2 Good<br>3 Fair<br>4 Bad<br>5 Very bad                                                                                         |
| RISK  | At risk of poverty or social exclusion | 1 Not at risk<br>2 At risk of poverty<br>3 At risk of poverty , sev materially deprived<br>, LWI                                               |
| ROO   | House/flat: number of rooms            | 1 1 room<br>2 2 rooms<br>3 3 rooms<br>4 4 rooms<br>5 5 rooms<br>6 6+ rooms                                                                     |
| TST   | Tenure status                          | 1 Owner<br>2 Tenant or subtenant paying rent at<br>prevailing / market rate<br>3 Accommodation is rented at a reduced<br>rate or provided free |
| DTY   | Dwelling type                          | 1 Detached house<br>2 Semi-detached house<br>3 Flat in building < 10 dwellings<br>4 Flat in building >= 10 dwellings                           |

Table 1A - Respondent and household socioeconomic characteristics (Source: EU-SILC 2008)

| TYPE | Household type                                            | 1 One person household<br>2 2 adults both adults < 65 years<br>3 2 adults , at least one adult $\geq$ 65 years<br>4 Other without dependent children<br>5 Single parent and $\geq$ 1 dependent children<br>6 2 adults, one dependent child<br>7 2 adults, two dependent children<br>8 2 adults and $\geq$ 3 dependent children<br>9 Other households with dependent children<br>10 Other type |
|------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDI  | Equivalised disposable income                             | 1 1st quintile<br>2 2nd quintile<br>3 3rd quintile<br>4 4th quintile<br>5 5th quintile                                                                                                                                                                                                                                                                                                        |
| ΡΟΙ  | Poverty indicator                                         | 0 Not at risk of poverty<br>1 At risk of poverty                                                                                                                                                                                                                                                                                                                                              |
| SMD  | Severely materially deprived household                    | 0 Not severely deprived<br>1 Severely deprived                                                                                                                                                                                                                                                                                                                                                |
| нсо  | Financial burden of the total housing cost                | 1 A heavy burden<br>2 Somewhat a burden<br>3 Not burden at all                                                                                                                                                                                                                                                                                                                                |
| DEB  | Debts for hire purchases or loans                         | 0 Non Debts<br>1 Debts                                                                                                                                                                                                                                                                                                                                                                        |
| WIS  | Work intensity status                                     | 1 WI = 0<br>2 0 < WI< 0.5<br>3 0.5 $\leq$ WI < 1<br>4 WI = 1                                                                                                                                                                                                                                                                                                                                  |
| FAL  | Family/children related allowances                        | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |
| AAL  | Social exclusion not elsewhere<br>classified – Allowances | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |
| HAL  | Housing allowances                                        | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |
| ІСТ  | Regular inter-household cash received                     | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |
| ALI  | Alimonies received (compulsory, voluntary)                | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |
| l16  | Income received by people aged under 16                   | 0 No<br>1 Yes                                                                                                                                                                                                                                                                                                                                                                                 |

Table 2A - Social capital indicators

| N° | Label | Variablename                                                                                                                                                                                                             | Categories                                 | Source   |
|----|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------|
|    |       | Social behaviour (SB)                                                                                                                                                                                                    |                                            |          |
| 1  | CRH   | In your local area are there<br>any problems of crime,<br>violence or vandalism?                                                                                                                                         | 0 No<br>1 Yes                              | EU-SILC  |
| 2  | CRC   | Crime recorded by the<br>police: total crime [Number<br>of crimes per 100<br>inhabitants <sup>]</sup>                                                                                                                    | 1 Low<br>2 Medium<br>3 High                | Eurostat |
|    |       | Social relationships (SR)                                                                                                                                                                                                |                                            |          |
| 3  | РНО   | Do you have a phone?<br>(including mobile)                                                                                                                                                                               | 0 No<br>1 Yes                              | EU-SILC  |
| 4  | TVC   | Do you have a colourtv?                                                                                                                                                                                                  | 0 No<br>1 Yes                              | EU-SILC  |
| 5  | PC    | Do you have a computer?                                                                                                                                                                                                  | 0 No<br>1 Yes                              | EU-SILC  |
| 6  | СНІ   | Number of hours of child<br>care by grandparents, others<br>household members (outside<br>parents), other relatives,<br>friends or neighbors (free of<br>charge) (per household<br>member if less than 12 years<br>old). | 1 None<br>2 Low<br>3 Medium<br>4 High      | EU-SILC  |
| 7  | FAW   | Are there "family workers" in<br>your family business?<br>(number)                                                                                                                                                       | None<br>1 FAW<br>2 FAW<br>3 FAW<br>4 + FAW | EU-SILC  |

|    |     | Territorialcontext<br>(TC)                                                                                                                                                            |                             |          |
|----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------|
|    | осн | Overcrowded household                                                                                                                                                                 | 0 No<br>1 Yes               | EU-SILC  |
|    | осс | Overcrowding rate                                                                                                                                                                     | 1 Low<br>2 Medium<br>3 High | Eurostat |
| 10 | H1C | Housing deprivation<br>rate: % of total<br>population living in<br>a dwelling with a<br>leaking roof, damp<br>walls, floors or<br>foundation, or rot in<br>window frames of<br>floor. | 1 Low<br>2 Medium<br>3 High | Eurostat |
| 12 | Н2Н | Is your dwelling too<br>dark, meaning is<br>there not enough<br>day-light coming<br>through the<br>windows?                                                                           | 0 No<br>1 Yes               | EU-SILC  |

| 13 | НЗН | Do you have too<br>much noise in your<br>dwelling from<br>neighbors or from<br>outside (traffic,<br>business, factory)?                       | 0 No<br>1 Yes            | EU-SILC  |
|----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|
|    | НЗС | Environment of the<br>dwelling: % of total<br>population suffering<br>noise from<br>neighbors or from<br>the street.                          | 1Low<br>2Medium<br>3High | Eurostat |
| 14 | H4H | Pollution, grime or<br>other environmental<br>problems in the<br>local area such as<br>smoke, dust,<br>unpleasant smells<br>or polluted water | 0 No<br>1 Yes            | EU-SILC  |
|    | H4C | Environment of the<br>dwelling: % of total<br>population suffering<br>from pollution,<br>grime or other<br>environmental<br>problems.         |                          | Eurostat |
| 15 | AP1 | Greenhouse gas<br>emission (in CO <sub>2</sub><br>equivalent).                                                                                | 1Low<br>2Medium<br>3High | Eurostat |
| 17 | AP3 | Urban population<br>exposure to air<br>pollution by<br>particulate matter<br>(micrograms per<br>cubic meter).                                 | 1Low<br>2Medium<br>3High | Eurostat |