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Social capital or social cohesion: what matters for subjective well-being (SWB)?*

Carlo Klein

Population & Emploi, CEPS/INSTEAD, Luxembourg

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Abstract

The theoretical analysis of the concepts of social capital and of social cohesion shows that social capital should be considered as a micro concept whereas social cohesion, being a broader concept than social capital, is a more appropriate concept for macro analysis. Therefore, we suggest that data on the individual level should only be used to analyze the relationship between social capital, social cohesion indicators and subjective well-being and that they do not allow commenting on the level of social cohesion in a society. For this last type of analyses aggregated indicators of social cohesion have to be computed which is not the issue of this paper. Our empirical analysis is based on individual data for Luxembourg in 2008. In general, our results suggest that investments in social capital generate monetary returns (increased income) and psychic returns (increased SWB) even in a highly developed and multicultural country like Luxembourg. When we are adding on the micro level variables representing the economic domain of social cohesion following Bernard (1999), then we observe that this domain also has an effect on income and on SWB. Therefore, we recommend including the economic domain in any future analysis using the concept of social cohesion.

Keywords: social capital ; social cohesion ; subjective well-being; EVS 2008

JEL classification codes: A1, D1, I3

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1 Introduction

Recent developments in the social capital literature and in happiness economics suggest that subjective well-being (SWB here after) does not only depend on the consumption of market goods and services but also on non market, hence on non economic relations. A large literature analyzes the effect of social capital on SWB and a long debate about the relationship between income, as a means of consumption, and SWB can be found in happiness economics. In this context another concept, mainly used by sociologists and political scientists, has to be mentioned: social cohesion. Social cohesion has been used since the 1990s by policy makers in the developed countries (Hulse and Stone; 2007) and can be considered as a condition for political stability, as a source of well-being and of economic growth and as a justification for public spending on social policies. A closer look at the definitions of social cohesion and of social capital shows that there are strong similarities, but also differences between these concepts. Therefore we think that it is worth analyzing not just the relationship between social capital and SWB but also including in this analysis the concept of social cohesion in order to get a better understanding of the relationship between SWB and social variables without neglecting the economic aspects.

So we are proposing to clarify firstly the relationship between social capital and social cohesion, then secondly, to analyze the empirical effect of these two concepts on SWB based on the European Values Study (EVS) wave 2008 for Luxembourg.

Two justifications for using Luxembourg data may be advanced. Firstly, Luxembourg can be considered as a real world laboratory for a future multicultural Europe, as Luxembourg has one of the highest rate of immigration in the European Union (UNDP, 2009). Secondly, as Luxembourg has one of the highest incomes per capita (IMF, 2011) it will be interesting to see if economic variables, especially income, are still important for SWB and what will be the effect of non materialistic variables on SWB.

The relationship between social cohesion, social capital and well-being, from a socio-economical point of view, can be analyzed following Osberg's (2003) assumption that cooperation between economic agents in general will be an advantage for a society as a whole. Agreements on and implementations of social decisions are simply easier when the group (firms, families, associations, teams ...) experiences a high degree of cooperation. Osberg

even speaks about a virtuous cycle where more cohesion implies more cooperation, with more cooperation implying more economic output which finally creates more cohesion. Taking this argument one step further, we can say that these social interactions will have an indirect effect on SWB as economic output will be considered as one of the determinants of this SWB. Apart from this effect of social interactions on economic outcome, we will also consider that there will be a direct link between social cohesion, social capital and SWB. So, our general assumption, based on different approaches in the social sciences, will be that social cohesion and social capital have a direct and an indirect effect, via economic output, on SWB.

Our paper will be organized as follows. Section 2 will present the theoretical concepts of social cohesion, social capital and its measurements. Section 3 will present SWB in an economic context. Section 4 will present a theoretical model of the relationship between SWB and social cohesion and social capital and section 5 presents the data and the empirical results. A final section will present some concluding remarks.

2 Social capital and social cohesion: two different concepts?

As we consider that the social context of economic decisions is important, we have to answer a first question: What are the links between social cohesion and social capital, especially if we use the concept of social cohesion on a microeconomic level and not on a macroeconomic level as suggested by Osberg (2003)? To answer this question, we have to define social capital and compare this (or these) definition(s) to those of social cohesion.

2.1 Social capital as a result of an investment behavior

The concept of social capital appeared in the scientific literature during the eighties¹. Bourdieu (1986, translation of his French definition 1980) defined social capital as an “aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectively-owned capital”. Coleman (1990) presented a much vaguer definition when he said that “social capital inheres in the structure of relations between persons and

¹ Even if there were earlier works about social capital (see Putnam, 2000), the recognition of the concept in the social sciences happened during the eighties.

among persons. It is lodged neither in individuals nor in physical implements of production.” Becker (1996) focuses much more on the consequences of investments in social capital when he considers the effect of peers’ behavior on the individual’s behavior and on their utility when he says that social capital “incorporates the influence of past actions by peers and others in an individual’s social network and control system”.

A definition closer to Bourdieu’s idea can be found in Putnam (2000) as he considers that “social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them”.

More recent definitions by Oxoby (2009) and Dasgupta (2010) are also focusing on the same ideas. Oxoby paraphrasing Dayton-Johnson (2003) considers social capital as “an individual’s sacrifices (time, effort, consumption) made in an effort to promote cooperation with others”; whereas Dasgupta (2010) discusses the question of a precise definition of social capital. He finally proposes a “lean” definition of social capital: social capital “should be interpreted as interpersonal networks where members develop and maintain trust in one another to keep their promises by the device of “mutual enforcement” of agreements”.

One important aspect of almost all the definitions of social capital is the fact that social capital, similar to physical or human capital, is (explicitly or implicitly) developed by individuals to generate some future returns. In this sense, social capital is considered as a resource and not just a component of social structures. This idea can be found in Coleman (1990): “The function identified by the concept of “social capital” is the value of certain aspects of social structure to actors, as resources that can be used by the actors to realize their interests.” He also adds: “Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence”. Dayton-Johnson (2003) is also very clear on this point: “Social capital as defined here is an individual asset, similar to human capital: an agent must set aside current resources in the hope of a future return”. More recently Lin and Erickson (2008) are also insisting on this aspect of social capital: “A theory of social capital, therefore, focuses on the production and the returns of social capital and explicates how individual and collective actors invest in social relations through which they gain access to diverse and rich resources for expected returns”.

Based on these different definitions we think that social capital can be considered as a result of investments by individuals or groups of individuals in social relations (integrating

social networks), in reciprocity norms and in trust in others and in institutions. These investments, as all investments, should yield expected monetary (increased earnings, for example) or psychic returns (increased levels of SWB, for example).

These expected returns may benefit directly the investor, but in general these investments are also creating externalities of production that can be either positive or negative. Following Osberg's assumption about the effects of social cooperation on economic output, we have to consider that the sum of the positive externalities has to be superior to the sum of the negative externalities for the whole society.

For this reason social capital is in general considered not just as a private good but also as a public good (Coleman, 1990; Putnam, 2000).

In this context, two forms of social capital may be considered (Putnam; 2000 and OECD; 2001, for example): Firstly, bonding or exclusive social capital which is an inward looking form of social capital that tends "to reinforce exclusive identities and homogenous groups" (Putnam, 2000). In this case the positive externalities will be limited to the group members and excluded individuals may suffer from negative externalities. Secondly, bridging or inclusive social capital which is an outward looking form of social capital that tends to "encompass people across diverse social cleavages" (Putnam, 2000). In this case, we can expect that the positive externalities will benefit the whole society and not just one specific social group.

A second classification of social capital is proposed by Bartolini et al. (2008). These authors consider that social capital can either be relational or non-relational. Relational social capital is the "non-market relations component of social capital" or the behavioral aspect of social capital whereas the non-relational social capital refers to the "beliefs concerning institutions component of social capital". This distinction is quite interesting in the context of our analysis because it will allow us to link later on the concept of social capital to the concept of social cohesion.

Before we turn to the concept of social cohesion, we will summarize the main characteristics of social capital from the economic point of view: firstly, social capital has to be considered on the individual level, secondly, individuals (implicitly or explicitly) expect a monetary or psychic return on their investments in social capital and finally investments in social capital create externalities of production.

2.2 Social cohesion, more than just the sum of social capital investments?

As in the case of social capital, several definitions of social cohesion have been given by sociologists. A first one has been developed by the leaders in this field of research, the “Policy Research Initiative” of the Canadian Government and then used by the “Réseaux canadiens de recherche en politiques publiques (RCRPP)”: “Social cohesion is a continuous process of elaborating an assembly of shared values, of shared challenges and of equal opportunities (in a country), all based on a feeling of trust, hope and reciprocity among all (inhabitants of a country).” (Policy Research Committee Government of Canada, 1999).

The difficulty to define social cohesion in a precise way is already highlighted by Bernard (1999) when he considers social cohesion as “a quasi-concept, that is, one of those hybrid mental constructions that politics proposes to us more often in order to simultaneously detect possible consensuses on a reading of reality, and to forge them.” For this author the quasi-concept has two characteristics: the concept is based on the analysis of data and it is left vague to be adaptable to various situations.

Different dimensions of social cohesion have been proposed by researchers working on this concept. Jenson (1998) considers five dimensions of social cohesion: 1. affiliation/isolation, 2. insertion/exclusion, 3. participation/passivity, 4. acceptance/rejection, 5. legitimacy/illegitimacy. Bernard (1999) considers three domains of social cohesion (economic, political and socio-cultural) and distinguishes for each domain a formal and a substantial character. The formal character of a domain refers to individuals’ attitudes whereas the substantial character of the different domains refers to the individuals’ behaviors. Compared to Jenson, Bernard adds the economic domain and as a substantial character the opposition equality/inequality.

A more recent definition has been proposed by Chan et al. (2006) who consider social cohesion as “a state of affairs concerning both the vertical and the horizontal interactions among members of a society, as characterized by a set of attitudes and norms that include trust, a sense of belonging, and the willingness to participate and help, as well as their behavioral manifestations”. They present then a two dimension measurement (a horizontal dimension representing the cohesion within a civil society and a vertical dimension representing a state-citizen cohesion) of social cohesion. Each dimension is characterized by a subjective (people’s state of mind) and an objective (behavioral manifestations) component. It is inter-

esting to note that these authors are not considering the economic domain so that for them economic considerations are not contributing directly to social cohesion. So, finally their definition is quite close to the definitions of social capital discussed in the previous paragraph.

The distinction between attitudes and behavior can also be found in Friedkin (2004) who is concerned about group-level conditions of social cohesion based on individual attitudes and behaviors towards group memberships.

In an economic context, we find the following definition by Dayton-Johnson (2003): "Social cohesion is a state variable that changes over time. It is the discounted sum of past social capital investment" or "social cohesion is the (depreciated) stock of past social capital investment." This author clearly distinguishes two levels in the analysis: on the individual level we find social capital as a result of an investment behavior and on the global level we have social cohesion as a characteristic of a society or of a community. This is a first hint on the relationship between social cohesion and social capital and this definition implicitly rejoins the definitions of social capital that we have seen before (Bourdieu 1986, Coleman 1990, Putnam, 2000). This relationship, between social capital and social cohesion is based on the idea that social cohesion can be considered on the community level and so may have a bonding effect, and it can be considered on the society's or nation's level where it may have a bridging effect. Secondly, the distinction between a subjective or formal and objective or substantial dimension or character also rejoins the distinction of non-relational and relational social capital. So, for both concepts we find the distinction between a behavioral and an attitudinal component. A third point will be the idea of investment. As all the authors defining social capital agree on the fact that social capital is a result of previous investments, this relationship is less clear in the case of social cohesion. Will social cohesion be the result of some conscious investments by the members of a community or society or will social cohesion be a (positive) externality due to individual investment in social capital? This discussion can also be found in Hulse and Stone (2007) who consider three different dimensions of the concept of social cohesion. The first dimension refers to the importance of social relations and the authors mention explicitly that social cohesion "is envisaged as a 'bottom up' voluntary process in which people and social groups play a major role, with government as an enabler and facilitator". But finally their last dimension, considered by the authors as an important point, describes social cohesion as being "more...than the sum of social capital and social

exclusion". In this context the idea of a voluntary process loses of importance but can still be considered as being present through the investment in social capital.

If we summarize now the definitions of social cohesion, some general ideas appear: the importance of shared values, trust and relationships among members of a society.

These characteristics are not fundamentally different from those of social capital. The major differences between both concepts seems to be that social capital is developed on the individual level with the perspective of a future return whereas social cohesion exists on the community's or society's level and will be more than the simple sum of individuals' social capital due to the existence of externalities in the production of social capital.

In spite of the difficulties to define these concepts of social capital and social cohesion, we think that it is important to consider its implications in an economic context as they are considered as basic political concepts used by different international organizations (European Commission, Council of Europe, 2008, OECD, 2009, for example).

2.3 The measurement of social capital and of social cohesion

Concerning social capital, three general characteristics can be found in almost all the definitions: social contacts, memberships in social groups and the question of trust. These elements can also be found when the different authors talk about empirical measurements of social capital (Coleman; 1990, Putnam; 2000 and Bartolini et al.; 2008, for example). So the major empirical indicators for social capital are the following: marital status, the fact of having children, social contacts, group memberships and trust in others and in institutions.

In the case of social cohesion, empirical macro and micro indicators have been computed. On the macro level, social indicators are used by the European Union and published by Eurostat (structural indicators, 2009) and by the OECD (OECD social indicators; 2009). These macro indicators will not be used in our study as we will work on survey data for just one country (Luxembourg) so that we cannot use macro indicators for international comparisons².

On the micro level, recent measurement methods have been proposed by Rajulton et al. (2007), Dickes et al. (2008, 2009) and Acket et al. (2011).

² These restrictions are due to the fact that a certain number of questions are only available for the Luxembourg EVS wave of 2008.

These methods rely on exploratory and confirmatory factor analysis to create factor scores for the different dimensions of social cohesion as defined by Jenson (1998) and Bernard (1999). A major difference between the two types of analysis is the fact that Rajulton et al. (2007) consider social cohesion on the community level whereas Dickes et al. (2008, 2009) and Acket et al. (2011) consider the same concept on the individual level. The disadvantage of the second method is that the authors have not considered the economic domain in their analysis as this domain presents some difficulties to determine operational indicators on the individual level³. The following table summarizes the different domains of social cohesion (Dickes et al.; 2009):

Domains	Nature of relations	
	Formal/attitudinal	Substantial/behavioural
Economic	Case A: Insertion/exclusion: a shared market capacity, particularly regarding the labour market	Case D: Equality/inequality: equality in chances and equality in conditions
	<i>Not part of social cohesion</i>	
Political	Case B: Legitimacy/illegitimacy: maintenance of public and private institutions which act as mediators	Case E: Participation/passivity: involvement in management of public affairs, third sector (in opposition to political disenchantment)
<i>Vertical dimension (state-citizen cohesion)</i>	<i>Trust in public figures Confidence in political and other major social institutions</i>	<i>Political participation</i>
Socio-cultural	Case C: Acceptance/rejection: pluralism in facts and also as a virtue i.e. tolerance in differences	Case F: Affiliation/isolation : share of common values, feeling of belonging to a same community
<i>Horizontal dimension (cohesion within society)</i>	<i>General trust with fellow citizens Willingness to cooperate and help fellow citizens, including those from "other" social groups Sense of belonging or identity</i>	<i>Social participation and vibrancy of civil society Voluntarism and donations Presence or absence of major inter-group alliances or cleavages</i>

Nevertheless to assess Bernard's theory indicators for the three domains should be considered and a factor analysis on economic attitudes responses (Dickes, 2010) allows defining

³ Acket et al. (2011) therefore consider Chan et al.'s (2006) definition that excludes the economic domain.

two empirical indicators of the formal character of the economic domain. Concerning the substantial character of economic domain, we suggest that considering labor market participation and the level of income may well correspond to Bernard's view when he talks about inequality of conditions and family poverty.

Following a "bottom up" approach⁴ (Acket et al.; 2011), we suggest that the indicators (factor scores) proposed by Dickes et al. (2008, 2009), Dickes (2010) and Acket et al. (2011) and the variables on labor market participation and income should allow analyzing the relationship between subjective well-being, social capital and social cohesion⁵.

At this level of our analysis it is quite clear that both types of empirical indicators present common characteristics and that some social capital indicators are either identical to social cohesion or included in these composite indicators. These elements are social contacts, group memberships as parts of the substantial character of the socio-cultural domain and trust in institutions as part of the formal character of the political domain of social cohesion. On the other hand there are characteristics of social capital that are (surprisingly) excluded in empirical analyses on social cohesion: trust in others and the family variables. Finally, social capital does not include an economic dimension by definition as social capital is always considered as a capital apart from economic capital. So from this point of view the indicators developed by Dickes et al (2008, 2009), and Acket et al.(2011) seem to measure more social capital (in a broader sense) on an individual level than social cohesion in the sense of Bernard (1999). Only when they consider the national dimension of the question (bottom-up approach) then we can talk about social cohesion. In this sense, they are implicitly following Dayton-Johnson (2003) that the individual investments in social capital will induce a certain level of social cohesion on the community or national level.

Considering these empirical indicators, we will have a confirmation of our previous conclusion that social cohesion seems to be a broader concept than social capital and it seems to be less linked to voluntary actions led by individuals as the literature does not consider social cohesion as a result of an investment behavior. Therefore, we will only use the collected data on the individual level to analyze the relationship between social capital, social cohesion indicators and subjective well-being and we will not make any comment on the level of social

⁴ This method considers that the observed individual characteristics can be used to describe social cohesion of a community or a society.

⁵ The used variables will be described in more details in paragraph 4.

cohesion in a society. For this last type of analyses aggregated indicators of social cohesion have to be computed which is not the issue of this paper.

3 Subjective well-being in an economic context

Generally, the economic analysis of human behavior focuses on the relationship between individual satisfaction and consumption formally presented by the standard utility function where the individual levels of utility depend on the quantities of goods and services consumed by the individual. Empirical analysis should be based on objective observations as the choices made by consumers should represent their decisions giving them the highest levels of utility. But nowadays, a subjective view of utility is increasingly being accepted by economists and must be considered as a complementary analysis to the standard objectivist analysis on utility. For example, Hausman and McPherson (2006) affirm that “economists should not ignore the [individuals’] desire to do certain things rather than simply to enjoy the consequences of their being done.”

Three different concepts of utility are presented in the economic literature (Frey et al.; 2004):

- decision utility or utility reflected in choices or revealed preferences (Kahneman, 2000);
- experienced utility or Bentham’s concept of experiences of pleasure and pain (Kahneman, 2000);
- procedural utility or “the well-being people gain from living and acting under institutionalized processes as they contribute to a positive sense of self, addressing innate needs of autonomy, relatedness and competence” (Frey et al., 2004).

We will consider that a utility function can be empirically estimated by a subjective happiness function that we will present in section 5. The use of a subjective happiness function presents two advantages highlighted by Frey and Stutzer (2002a):

- “subjective well-being is a much broader concept than decision utility; it includes experienced utility as well as procedural utility, and is for many people an ultimate goal;
- the concept of subjective happiness allows us to capture human well-being directly.”

If we accept that utility can be empirically estimated by SWB, then we have to define this last concept. Frey (2008), following Nettle (2005), considers that three different concepts can be found in the literature:

- happiness, as “momentary feelings of joy and pleasure”;
- life satisfaction, as an “overall contentment with life; and
- “eudaimonia or good life”, as the quality of life achieved by developing and fulfilling one’s potential”.

In general, economists consider that the concepts of well-being, satisfaction and happiness can be used interchangeably (Frey and Stutzer, 2002b), nevertheless in our empirical analysis we will separate the concepts of happiness, being a more emotional aspect of SWB, and of life satisfaction, being a more cognitive aspect of SWB.

We will also compute a general indicator for SWB by adding, for each individual, the scores corresponding to both answers. This composite indicator allows us to consider both aspects of SWB: the emotional and the cognitive evaluation of life.

Two standard questions can generally be found in surveys being interested in SWB “Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy” (often with a scale from 1 to 4 with 4 being the highest level of happiness) and : “All things considered, how satisfied are you with your life as a whole these days?” (often with a scale from 1 to 10 with 10 being the highest level of satisfaction). The first question can be considered as a measure of emotions whereas the second question is considered as a cognitive measure of life evaluation (Helliwell and Barrington-Leigh, 2010).

A certain number of criticisms of the method of evaluating SWB by asking people about their general satisfaction exists (Ferrer-i-Carbonell and Frijters, 2004, and Frey, 2008) but we still consider that “reported SWB is of sufficient quality to allow us to study economic and institutional effects on happiness, and that they are a satisfactory empirical approximation to individual welfare for testing economic theories” (Frey, 2008, p. 26)

4 A simple model of subjective well-being, social capital and social cohesion

In this paper, our theoretical position will be close to Bernard's (1999) and Rajulton et al.'s (2006) because we cannot consider social cohesion without its economic dimension even if this dimension is not included in the social cohesion indicator as suggested by Chan et al. (2006) and applied by Dickes et al. (2008, 2009). The last authors have considered that it might be difficult to obtain a satisfying measure of economic indicators for social cohesion based on micro data.

Following our conclusions from paragraph 2.3 on the measurement of social capital and social cohesion we are proposing the following model to analyze the relationship between social capital, social cohesion and SWB on the micro level. In this model, we are voluntarily focusing on the private returns to investments in social capital.

Firstly, we will keep the standard economic assumption that individual subjective well-being (SWB) will depend on the individual income. Income will be measured by absolute, but also by relative income (Clark et al. 2008) as people generally compare their own social situation to their peers' situation and generally adapt their behavior to their own levels of income as their aspirations change over their life cycle (Easterlin, 2001, for example).

If we introduce now Osberg's assumption that economic outcome is influenced by social interactions and Dayton-Johnson's assumption that, on the micro level, individuals invest in social capital, then we will consider that social capital influences the level of income, income considered as a proxy of economic outcome on the individual level. This last assumption is based on the fact that we consider a one period model with no savings. In this case, the income yield by the individual's economic output equals its consumption (Clark et al, 2008).

As we pointed out in our introduction, sociologists consider that social cohesion and social capital should have a direct influence on SWB, so that we have to consider a two steps model to analyze the effect of these concepts on subjective well-being: In a first step, social capital will be a determinant of income (equation 1) and, in a second step, income will be a determinant of SWB along with social capital and supplementary micro variables that can be used on the community or national level as proxies for social cohesion (equation 2). These supplementary variables should be considered as measures of the economic domain of social cohesion, especially of the formal character of this domain.

So, we will propose the following model to describe the relationship between SWB, social capital and social cohesion:

$$AI = f(SK, ED, z, \varepsilon_1) \quad (1)$$

In this earnings function, the absolute income AI will be a function of social capital SK, of the political and sociocultural domains of social cohesion, of the economic domain of social cohesion ED and of some control variables z. ε_1 represents the error term.

and

$$SWB = u(AI, RI, SK, ED, x, \varepsilon_2) \quad (2)$$

In this happiness function, SWB will be a function of absolute income AI, of relative income RI, of social capital SK, of the economic domain of social cohesion ED, of a certain number of control variables x which can be partly the same than those in equation (1) and ε_2 will be the error term.

This model is based on the assumptions that individual utility can be approximated by self-reported happiness or satisfaction as we have seen in section 3.

In general the prescribed estimation method for microeconomic happiness functions is the ordered probit method (Frey, 2008). This choice is based on the fact that in this kind of studies the dependent variable is discontinuous, restricted and might have different scales from one data set to another (Frey, 2008). A second argument in favor of the ordered probit method is based on the interpretation of the meaning of the general satisfaction question in surveys (Ferrer-i-Carbonell and Frijters, 2004, p. 641) : “economic papers generally assume that satisfaction answers are only ordinally comparable, i.e. that it is unknown what the relative difference between satisfaction answers is but that all individuals do share the same interpretation of each possible answer”.

But OLS estimates can be considered as close approximations for the ordered probit estimates and they have the advantage that the estimated coefficients are easier to interpret (Frey, 2008). Our specification also implies that the error terms ε_1 and ε_2 of both equations are correlated.

Considering these arguments, we propose to use the weighted Three-Stage Least Squares (3SLS) method (see Greene, 2008, for example) to estimate our two steps model, because the assumed correlation of the error terms will give inconsistent and inefficient estimates if we use the simple OLS technique.

In our model, AI will be considered as an endogenous variable. Therefore we will estimate in a first stage instrumented values for the endogenous variables (AI) in the system. These values will be developed by regressing all the exogenous variables in the system on the endogenous variable using OLS. At a second stage a GLS estimator and a consistent estimator for the error term matrix can be computed for the system. At a last stage the estimated error term matrix in the GLS estimating equation will be used to estimate all the parameters of the system.

Following Greene (2008) this 3SLS estimator is consistent as it satisfies the requirements for an Instrumental Variable (IV) estimator and it is efficient as the 3SLS estimator has the same asymptotic distribution as the full-information maximum likelihood estimator in the case of normally distributed error terms.

5 Empirical analysis

Our model will be estimated using the 2008 wave of the European Values Study (EVS) for Luxembourg.

The EVS is a large-scale, cross-national, cross-sectional and repeated survey on human values. The first wave was launched in 1981, then two waves followed in 1990 and 1999/2000 and the last wave was launched in 2008. The number of participating countries increased from 10 in 1981 to 45 in 2008. In our study, we will only consider the data for Luxembourg in 2008⁶.

5.1 The empirical earnings function

In this first equation we consider the determinants of the levels of the absolute income. So, the dependent variable, based on our EVS data, is the household's levels of net income used as a dichotomous variable⁷.

Then, the explanatory variables have been grouped into four categories: income variables, social capital variables, economic domain of social cohesion variables and other control variables.

⁶ For a detailed presentation of the EVS studies, see: <http://www.europeanvaluesstudy.eu/>

⁷ The definitions of the variables are presented in appendix 1.

The social capital and social cohesion variables are based on Jenson's (1998) and Bernard's (1999) theoretical dimensions and on Dickes et al.'s (2008, 2009) empirical indicators⁸.

To measure social capital we first consider the personal situation of the individuals as suggested by Bartolini et al. (2008): the fact of living in a couple and having at least one child in the household will be the corresponding variables. To separate the effects from an investment in social capital from the effects of social policies, we have added a dichotomous “dependency” variable indicating if the individual is living in a household only earning incomes from economic activities (wages, interests, rent) or if he is living in a household having incomes from economic activities and having social benefits. Then we will add a composite variable measuring trust in other people. This variable is based on the answers to the question if people, in general, can be trusted and to the question if people are trying to take advantage from one.

Then, five variables have been computed based on the EVS 2008 data for Luxembourg following Dickes et al.'s (2008, 2009): "trust in institutions" representing the formal relations in the political sphere, "solidarity" (feeling concerned about the living conditions of different social groups) representing the formal relations in the cultural sphere, "political participation" (participation in different political activities and institutions) representing the substantial relations in the political sphere, "social and cultural participation" (involvement in social and/or cultural associations) and "social relations" (interpersonal relationships) representing the substantial relations in the cultural sphere. In our eyes, these variables measure, on the individual level, the investments in social capital following the definitions of social capital discussed in paragraph 2.1. To link these variables to the concept of social cohesion, we have kept the structure suggested by Dickes et al.'s (2008, 2009).

To be able to get a more complete measure of social cohesion following Bernard's definition, we have considered two variables for the formal character and one variable for the substantial character of the economic dimension. The two first variables are composite variables resulting from a factor analysis (Dickes, 2011). These variables represent the individual's attitudes towards the economic system: the individuals have to express their opinion on the choice between meritocracy and equality (variable: Formal ch. economic domain 1) and on the

⁸ The used social capital/cohesion variables slightly differ from those used by Dickes et al. (2008 and 2009) because we only consider the EVS wave 2008 and so we do not have Dickes et al.'s (2008 and 2009) constraint to use only variables that are available for 1999 and 2008.

choice between meritocracy with an obligation to participate in the labor market and equality without feeling obliged to participate in the labor market (variable: Formal ch. economic domain 2).

Finally, we consider a certain number of control variables having an impact on SWB (Frey and Stutzer, 2002b, Frey, 2008): subjective importance of leisure, gender, age, nationality, level of education, being religious, and the fact that a household is living in an urban area or in a rural area. We have also added the date of the interview because one part of the interviews has been made before, the other part after the financial crisis of September 2008.

5.2 The empirical happiness function

Our happiness function will be estimated for three different dependent variables: “satisfaction” and “happiness” will be the answers to the standard SWB questions presented in section 3 and the third dependent variable will be the computed composite indicator “global” based on the sum of the scores from the two previous answers. This allows us to consider the emotional and the cognitive aspect of life evaluation (Helliwell and Barrington-Leigh, 2010) through a global indicator of SWB.

Apart from absolute income estimated in our first equation, we also consider relative income in our happiness function. This fact shall allow taking into account the individuals’ adaptations to income and their aspiration levels of income. We have used the EVS question on satisfaction with income (Clark et al., 2008): “Are you satisfied with your income?” to consider this subjective appraisal of income.

There is only one change for the control variables compared to the first equation: the subjective health status variable has been added for this equation as we consider that a subjective appraisal of one’s health status has an influence on general well-being.

5.3 Results

In this study we use a sample of Luxembourg’s adult population (aged from 18 to 88). The adjusted sample consisted of 1 610 individuals. For our analysis a sample of 1 037 individuals without missing values has been considered. The descriptive statistics of the most important variables for this study can be found in table 1.

Table 1: Descriptive statistics

Variables	Observations	Mean	Std. Dev.	Min.	Max
Global SWB	1,037	16.12	2.99	3.5	20
Happiness	1,037	3.32	0.61	1	4
Life satisfaction	1,037	7.83	2.06	1	10
Households' net income	1,037	1.64	0.48	1	2
Satisfaction with income	1,037	5.29	1.88	1	9
Dependency	1,037	0.50	0.5	0	1
Trust in institutions	1,037	38.23	6.28	14	55
Solidarity	1,037	20.55	5.17	7	35
Political part.	1,037	18.68	4.43	10	34
Social & cultural part.	1,037	1.28	2.22	0	20
Social relations	1,037	8.47	2.71	3	16
Trust in others	1,037	1.95	1.38	1	9
Formal ch. economic domain 1	1,037	20.44	4.17	9.3	30
Formal ch; economic domain 2	1,037	13.30	4.00	8.5	28
Couple	1,037	0.66	0.47	0	1
At least one child	1,037	0.42	0.49	0	1
Age	1,037	41.64	17.07	18	88

Source : EVS 2008

94 % of the Luxembourg's residents declare that they are either quite or very happy. Similar results can be found for the life satisfaction question and for the global indicator: 81 % declare at least a level of 6 out of 10 on the satisfaction scale and also 94 % declare a global satisfaction higher than 11 out of 20⁹.

Concerning income, we observe that 68 to 65 % (depending on the SWB variable) of the individuals declaring higher levels of SWB also have a high level of income whereas only 29 to 40 % of the individuals declaring low levels of SWB have a high level of income. The same can be observed for the satisfaction with income. 84 to 87 % of the individuals being highly satisfied also declare a high level of satisfaction with their income whereas 53 to 58 % of the individuals declaring low levels of satisfaction have a high degree of satisfaction with their income.

After these descriptive results we present now the estimates of our earnings function (table 2)¹⁰. The dependent variable is the individual household's net income. This income includes all types of income, social security benefits included. The original responses have been grouped in two categories: individuals living in households having less than 3,000 Euros as net income per month and individuals living in households having 3,000 Euros and more as net income per month. A "dependency" variable has been introduced indicating if individ-

⁹ To give an equal weight to the emotional and the cognitive aspect of SWB, we have computed the global indicator as follows: global = [(happy/4)*10] + satisfaction.

¹⁰ Here we only present the variables measuring social capital and those variables allowing to discuss social cohesion on an aggregated level. The complete results can be found in annex 2.

ual households' net income comprises social security benefits apart from income of factors of production (wages, income from capital and land). This variable should give us the possibility to separate the effects of social policies and of investment on social capital on income and on SWB.

In our presentation of the results we will consider first the social capital variables, but we will immediately focus on the relationship between these social capital variables and social cohesion to show the overlapping elements of both concepts especially on the individual's level.

Table 2: Estimated earnings function. Dependent variable: household's net income

Variable	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Formal ch. economic domain 1	0.0059	0.0032	1.84	0.065	[-0.0004; 0.0122]
Formal ch; economic domain 2	0.0090	0.0035	2.56	0.010	[0.0021; 0.0159]
Being inactive	0.0122	0.0358	0.34	0.732	[-0.0578; 0.0823]
Being unemployed	-0.0943	0.0801	-1.18	0.239	[-0.2514; 0.0627]
Dependency	0.1859	0.0320	5.81	0.000	[0.1232; 0.2486]
Trust in institutions	0.0037	0.0023	1.63	0.104	[-0.0008; 0.0082]
Solidarity	-0.0065	0.0026	-2.46	0.014	[-0.0117; -0.0013]
Political participation	0.0118	0.0034	3.44	0.001	[0.0051; 0.0185]
Socio-cultural participation	-0.0040	0.0063	-0.63	0.529	[-0.0164; 0.0084]
Social relations	0.0039	0.0057	0.68	0.499	[-0.0073; 0.0151]
Trust in others	-0.0005	0.0015	-0.31	0.759	[-0.0035; 0.0025]
Couple	0.2535	0.0317	8.00	0.000	[0.1914; 0.3156]
At least one child	-0.1195	0.0364	-3.28	0.001	[-0.1910; -0.0481]
Number of observations	1037	« R-squared »		0.24	

Source : EVS 2008

For the basic social capital variables, we can observe that the fact of living in a couple has a positive effect on income whereas the effect of having at least one child living in the household has a negative effect on income. If we broaden the concept of social capital and consider now the effect of social groups and social memberships on income, we can observe that only participation in political organizations has a statistically significant and positive impact on income. This variable corresponds to the substantial character of the political dimension as defined by Dickes et al. (2008, 2009). The other variables representing social capital, trust in general and social relations, have no statistically significant effect on income.

If we consider now the individual variables allowing measuring the broader concept of social cohesion, we can observe that solidarity (the formal character of the socio-cultural dimension of social cohesion) has a negative effect on income and for the economic dimension of social cohesion (following Bernard) only the formal character of this dimension matters

for income but with an ambiguous relationship: individuals considering that a meritocratic system is preferable to a more egalitarian system are living in households with higher incomes, all else being equal (variable “Formal ch. economic domain 1”). On the other hand, individuals considering that a more egalitarian system without a social constraint to participate in the labor market are also living in households with higher incomes, all else equal (variable “Formal ch. economic domain 2”). The substantial character of this economic dimension, measured by the employment situation has no statistically significant effect on the household’s income.

The “dependency” variable has a positive effect on income so that we can consider that social policies in Luxembourg have the expected effect allowing correcting a certain inequality in the distribution of gross income¹¹.

The standard variables of earnings functions, levels of education and age, as a proxy for work experience, have the expected positive coefficients¹².

So, some aspects of social capital are positively linked to the level of the household’s income: living in a couple, participating in political organizations and having a preference for a meritocratic organization of society, but without a constraint to participate in the labor market. Then, having at least one child, being concerned about other people’s situation are negatively linked to the household’s income.

After the presentation of the results of our earnings function, we will now come to the relationship between social capital, social cohesion, income and SWB, measured by the coefficients of our happiness functions. We will first present the results where we consider a general indicator of SWB (table 3), then we will present the same results when we are using the standard dependent variables, levels of happiness (table 4) and levels of life satisfaction (table 5)¹³.

Table 3: Happiness function; dependent variable: global satisfaction

Variable	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Income	0.9506	0.1975	4.81	0.000	[0.5635; 1.3378]
Subjective appraisal of income	0.4182	0.0542	7.72	0.000	[0.3121; 0.5244]

¹¹ This can be illustrated by the fact that the same regression without the “dependency” variable gives no significant coefficient for the “child” variable so that we can expect social benefits to correct the potential loss of income due to child raising.

¹² See annex 2.

¹³ The complete results can be found in annex 2.

Formal ch. economic domain 1	0.0158	0.0201	0.79	0.432	[-0.0236; 0.0551]
Formal ch; economic domain 2	-0.0513	0.0222	-2.31	0.021	[-0.0948; -0.0078]
Being inactive	0.2709	0.2251	1.20	0.229	[-0.1703; 0.7121]
Being unemployed	-1.4675	0.5107	-2.87	0.004	[-2.468; -0.4666]
Dependency	0.0468	0.2045	0.23	0.819	[-0.3541; 0.4477]
Trust in institutions	0.0328	0.0145	2.26	0.024	[0.0043; 0.0613]
Solidarity	-0.0331	0.0167	-1.98	0.047	[-0.659; -0.0004]
Political participation	-0.0213	0.0217	-0.98	0.327	[-0.0638; 0.0213]
Socio-cultural participation	0.0408	0.0398	1.02	0.306	[-0.0373; 0.1189]
Social relations	0.0832	0.0361	2.30	0.021	[0.0124; 0.1540]
Trust in others	0.0249	0.0096	2.59	0.009	[0.0061; 0.0437]
Couple	0.7508	0.2070	3.64	0.000	[0.3474; 1.1588]
At least one child	0.1094	0.2310	0.47	0.636	[-0.3433; 0.5620]
Number of observations	1037	« R-squared »		0.31	

Source : EVS 2008

The basic social capital variables have a similar effect on global SWB than on income: living in a couple improves well-being whereas having at least one child living in the household does not affect this same variable. Then, the effect of social groups and social memberships on SWB is limited to the frequency of social relations (the substantial character of the socio-cultural dimension of social cohesion in Bernard's scheme) and to the fact that an individual feels concerned about other people (the formal character of the socio-cultural dimension of social cohesion in Bernard's scheme). A higher frequency of social contacts improves global SWB whereas being highly concerned about other people's situation reduces global SWB. The trust variables show that trustful people (in others and in institutions) declare a higher level of global SWB than trustless people.

If we consider now the economic domain of social cohesion, where we consider absolute income and employment status as indicators for the substantial character of social cohesion, we can observe that the variables representing the substantial and the formal characters of social cohesion have significant positive effects on global SWB. Having a high income and being employed improve global SWB whereas having a favorable attitude towards a meritocratic system but with an obligation to participate in the labor market also increases global SWB¹⁴.

So, in general and all other things being equal, standard social capital variables have a positive effect on subjective well-being: living in a couple, trust in others and in institutions, and having a high frequency of social relations. Other standard variables of happiness functions also have the expected positive effects: a high absolute, a satisfying relative income and

¹⁴ Only the coefficient of "Formal ch. economic domain 2" is statistically significant.

being employed improve the individual's global SWB. The new variables following Bernard's scheme (solidarity and Formal ch. economic domain 2 variables) have a negative effect on SWB for those persons who are much concerned about other people's situation and who are in favor of a more egalitarian society without being obliged to participate in the labor market, all other things being equal.

The "dependency" variable is not statistically significant so that we can assume that social policies affect SWB only in an indirect way through their effects on income.

If we separate now global SWB into its cognitive (measured by the variable "satisfaction") and emotional (measured by the variable "happy") aspects, then we observe that the statistical relationship is stronger in the first than in the second case.

Table 4: Happiness; dependent variable: happiness

Variable	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Income	0.1438	0.0401	3.58	0.000	[0.0651; 0.2225]
Subjective appreciation of income	0.0541	0.0110	4.92	0.000	[0.0326; 0.0757]
Formal ch. economic domain 1	0.0015	0.0041	0.37	0.714	[-0.0065; 0.0095]
Formal ch; economic domain 2	-0.0087	0.0045	-1.94	0.052	[-0.0176; 0.0001]
Being inactive	0.0168	0.0457	0.37	0.714	[-0.0729; 0.1064]
Being unemployed	-0.1079	0.1038	-1.04	0.298	[-0.3113; 0.0955]
Dependency	0.0062	0.0416	0.15	0.881	[-0.0752; 0.0877]
Trust in institutions	0.0043	0.0296	1.46	0.145	[-0.0015; 0.0101]
Solidarity	-0.0032	0.0034	-0.94	0.345	[-0.0099; 0.0034]
Political participation	-0.0036	0.0044	-0.82	0.411	[-0.0123; 0.0050]
Socio-cultural participation	0.0112	0.0081	1.38	0.167	[-0.0047; 0.0270]
Social relations	0.0103	0.0073	1.41	0.159	[-0.0040 ; 0.0247]
Trust in others	0.0030	0.0019	1.55	0.121	[-0.0008 ; 0.0068]
Couple	0.1779	0.0421	4.23	0.000	[0.0954 ; 0.2603]
At least one child	0.0418	0.0469	0.89	0.373	[-0.0501 ; 0.1338]
Number of observations	1037	« R-squared »		0.24	

Source : EVS 2008

In the case where we consider the emotional aspect of SWB as our dependent variable (table 4), the level of happiness, the effect of social capital and social cohesion variables on SWB seems to be less important than in the previous case.

Only the variables living in a couple and the variables representing the economic domain of social cohesion (absolute income, relative income and the Formal ch. economic domain 2 variable) are statistically significant and have a positive effect on SWB. So, social capital seems to have a limited effect on SWB when we are only considering the emotional aspect of this concept.

If we consider now the cognitive aspect of SWB (table 5), general life satisfaction, the same variables as in the global case are statistically significant. So, social capital seems to be more linked to cognitive considerations than to emotional considerations.

Table 5: Happiness function; dependent variable: life satisfaction

Variable	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Income		0.1342	4.38	0.000	[0.3244; 0.8504]
Subjective appreciation of income	0.5874 0.2821	0.0368	7.66	0.000	[0.2099; 0.3542]
Formal ch. economic domain 1	0.0117	0.1363	0.86	0.392	[-0.0151; 0.0384]
Formal ch; economic domain 2	-0.0289	0.0151	-1.92	0.055	[-0.0584; 0.0007]
Being inactive	0.244	0.1525	1.60	0.109	[-0.0546; 0.5434]
Being unemployed	-1.1990	0.3470	-3.45	0.001	[-1.8792; -0.5188]
Dependency	0.0183	0.1387	0.13	0.895	[-0.2535; 0.2901]
Trust in institutions	0.0216	0.0099	2.19	0.029	[0.0023; 0.0410]
Solidarity	-0.0241	0.0113	-2.13	0.033	[-0.0463; -0.0019]
Political participation	-0.0124	0.0147	-0.84	0.399	[-0.0413; 0.0165]
Socio-cultural participation	0.0134	0.0271	0.49	0.621	[-0.0397; 0.0664]
Social relations	0.0563	0.0245	2.30	0.022	[0.0082; 0.1044]
Trust in others	0.0171	0.0065	2.63	0.009	[0.0043; 0.0299]
Couple	0.3177	0.1405	2.26	0.024	[0.0423; 0.5930]
At least one child	0.0136	0.1568	0.09	0.931	[-0.2937; 0.3210]
Number of observations	1037	« R-squared »		0.27	

Source : EVS 2008

6 Concluding remarks

The theoretical conclusion of our analysis of social capital and social cohesion will be that analyses on the micro level should use the concept of social capital. On a macro level both concepts can be used and in this case we have to consider that the concept of social capital will be included in the concept of social cohesion and that therefore social cohesion will be a broader concept than social capital. But this broader concept seems to be less adapted for analyses on the micro level.

The empirical results of our two step model relating social capital, indicators of social cohesion and SWB show that firstly social capital has an influence on the level of households' income: living in a couple, being part of political organizations and trusting institutions are positively correlated to the household's net income whereas having at least one child living in one's household and feeling concerned about others' situation is negatively correlated to this same variable. The individual attitudes about the economic organization of the society give ambiguous results: A positive attitude towards a meritocratic organization of the

society is positively correlated to income whereas an egalitarian approach without a labor market participation constraint is also positively correlated to income.

So, for this first step of our empirical analysis, we can suggest that there is a positive monetary return on investments in social capital measured by some of the different variables mentioned in this paragraph.

Social policies seem to correct for negative returns on some aspects of social capital, for example in the case of reduced gross income in the case of having children living in one's household.

Secondly, we can assume a non-monetary return or psychic return on this investment in social capital, measured by the relationship between social capital, social cohesion and SWB, and we observe that some of the variables mentioned in the first step are positively correlated to SWB in this happiness function: living in a couple, trusting institutions. On the other hand, participation in political organizations has no statistically significant impact on SWB. Apart from these variables some more variables are now positively correlated to SWB: having a high frequency of social relations and trusting people can be considered as a positive return on these types of investments in social capital. As in the first step, having a strong feeling of solidarity with other people is negatively correlated with SWB.

So, we can suggest that finally social capital not just may improve individual or household income, but it may also improve SWB, especially if we consider the cognitive aspect of this concept. These different variables representing social capital also cover the political and socio-cultural indicators for these domains of social cohesion as developed by Dicks et al. (2008, 2009).

If we are considering now the indicators on the individual level of the economic domain of social cohesion, we can observe that the variables considered as proxies for this domain are also positively correlated to SWB as expected from an economic point of view. The substantial or behavioral character of this domain, measured by the net income and by the employment status, have a positive impact on SWB. The same can be observed for the formal or attitudinal character of this same domain. These attitudes, measured by the subjective appraisal of one's household's net income and by one's attitude towards a meritocratic society, are also positively correlated to SWB.

So, investments in social capital generate individual monetary and psychic returns and these investments are part of a community's or society's social cohesion. Concerning the discussion on social cohesion and social capital, we can conclude that the theoretical concept of social cohesion, being a broader concept than social capital, should include the economic domain when social scientists are using this concept to analyze communities and/or societies.

From the economic point of view one major conclusion will be that even in a highly developed and multicultural country income matters for SWB independently from social interactions. So, on the individual level empirical indicators covering economic aspects as well as social aspects are needed to analyze the determinants of SWB.

Further research will be needed to develop the economic domain of social cohesion, in Bernard's sense, and the concept of externalities has to be integrated as well in our theoretical model as in an empirical analysis. Then, the availability of longitudinal data should allow having a better assessment of the causality between social capital, social cohesion variables and SWB.

7 References

- Acket S.; Borsenberger M. ; Dickes P.; Sarracino F. (2011), "Measuring and validating social cohesion: a bottom-up approach", *Working paper n° 2011-08*, CEPS/INSTEAD.
- Bartolini S.; Bilancini E.; Pugno M. (2008), "Did the Decline in Social Capital Depress Americans' Happiness?", *Quaderni del dipartimento di economia politica*, n. 540, University of Siena.
- Becker G.S. (1996), "Preferences and Values", in Becker (1996): *Accounting for tastes*; Harvard University Press, p. 3-23.
- Bernard P. (1999), "Social Cohesion : A Critique", *CPRN Discussion Paper N° F 09*, *Canadian Policy Research Networks*.
- Bourdieu (1980), « Le capital social. Notes provisoires ». *Actes de la Recherche en Sciences Sociales*. Vol. 31, N° 1, p. 2-3.
- Bourdieu (1986), "The Forms of Capital", In Richardson J. ed.: *Handbook of Theory and Research for the Sociology of Education*. Westport, Conn.: Greenwood Press, p. 241-258.
- Chan J.; To H.-P.; Chan E. (2006), "Reconsidering social cohesion: developing a definition and analytical framework for empirical research", *Social Indicators Research*, 75, p. 273-302.

Clark A.; Frijters P.; Shields M. (2008), "Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles", *Journal of Economic Literature*, 46:1, 95-144.

Coleman J. (1990), "*Foundations of Social Theory*", Cambridge and London, Belknap Press of Harvard University Press.

Council of Europe (2008), "*Well-being for all - Concepts and tools for social cohesion*", Trends in social cohesion, n° 20.

Dasgupta P. (2010): "A Matter of Trust: Social Capital and Economic Development". *SCI Discussion Paper*, The University of Manchester.

Dayton-Johnson J. (2003), "Social Capital, Social Cohesion, Community: A Microeconomic Analysis", in *The Economic Implications of Social Cohesion*, Osberg L. eds., University of Toronto Press, p. 43-78.

Dickes P. (2011): « Vérification et affinement des échelles d'égalitarisme du fichier Luxembourg 2008 ». *Note de recherche pour l'égalitarisme*, internal document CEPS/INSTEAD.

Dickes P.; Valentova M.; Borsenberger M. (2008), "Social cohesion: Measurement Based on the EVS Micro Data", *Statistica Applicata* Vol. 20, n. 2, p. 1-16.

Dickes P.; Valentova M.; Borsenberger M. (2009), "Construct Validation and Application of a Common Measure of Social Cohesion in 33 European Countries", *Social Indicators Research*. <http://www.springerlink.com/content/h22760411862134h/fulltext.pdf>

Easterlin R. (2001): "Income and Happiness: Towards a Unified Theory", *The Economic Journal*, 111, p. 465-484.

European Value Study: <http://www.europeanvaluesstudy.eu/>

Eurostat (2009), "*Structural Indicators; social cohesion*",

http://epp.eurostat.ec.europa.eu/portal/page/portal/structural_indicators/indicators/social_cohesion

Ferrer-i-Carbonell A.; Frijters P. (2004), "How Important Is Methodology for the Estimates of the Determinants of Happiness?", *Economic Journal* 114, no. 497, 641-659.

Frey B. (2008), *"Happiness. A Revolution in Economics"*, Cambridge, Massachusetts, London, England. The MIT Press.

Frey B. S.; Stutzer A. (2002a), "What can Economists Learn from Happiness Research?", *Journal of Economic Literature*, Vol. XL, pp. 402-435.

Frey B. S.; Stutzer A. (2002b), *"Happiness & Economics. How the Economy and Institutions Affect Well-Being"*, Princeton and Oxford, Princeton University Press.

Frey B. S.; Benz M.; Stutzer A. (2004), "Introducing Procedural Utility: Not Only What, but Also How Matters", *Journal of Institutional and Theoretical Economics*, 160, p. 377-401.

Friedkin N. E. (2004), "Social cohesion", *Annual Review of Sociology*. 30, p. 409-425.

Greene W. H. (2008), *"Econometric Analysis"*, 6th Edition, New Jersey, Prentice Hall.

Hausman D.; McPherson M. (2006), *"Economic Analysis, Moral Philosophy, and Public Policy"*; Second edition, Cambridge University Press.

Helliwell J.; Barrington-Leigh C. (2010), "Measuring and Understanding Subjective Well-being", *NBER Working Paper Series*.

Hulse K.; Stone W. (2007), "Social cohesion, social capital and social exclusion: a cross cultural comparison", *Policy Studies*. 28(2): p. 109-128.

International Monetary Fund (2011): *"World Economic Outlook Database-April 2011"*; <http://imf.org/external/pubs/ft/weo/2011/01/weodata/index.aspx>; accessed on April 26 2011.

Jenson J. (1998), "Mapping social cohesion : The state of Canadian research", *CPRN Discussion Paper* N° F 03, Canadian Policy Research Networks.

Kahneman D. (2000), "Experienced Utility and Objective Happiness: A Moment-Based Approach", in Kahneman D.; Tversky A. (Eds.): *Choices, Values and Frames*, New York: Cambridge University Press and the Russell Sage Foundation.

Lin N. & Erickson B. H. (2008), *"Social Capital. An International Research Program"*. Oxford University Press.

Nettle D. (2005), *"Happiness: The Science Behind Your Smile"*. Oxford University Press.

OECD (2001), “*The Well-being of Nations. The Role of Human and Social Capital*”. Paris.

OECD(2009), “*Society at a Glance 2009 - OECD Social Indicators*”.

Osberg L. (2003), “Introduction” in *The economic implications of social cohesion*, Osberg L; (Ed.). Studies in Comparative Political Economy and Public Policy. Toronto. Toronto University Press.

Oxoby R. (2009): “Understanding Social Inclusion, Social Cohesion and Social Capital”. *International Journal of Social Economics*, Vol. 36, Iss: 12, p. 1133-1152.

Policy Research Committee Government of Canada (1999), “Sustaining growth, human development, and social cohesion in a global world”, *Report prepared for the Policy Research Initiative*, Canada.

Putnam R. (2000), “*Bowling Alone. The Collapse and Revival of American Community*”. Simon & Schuster.

Rajulton F.; Ravanera Z.; Beaujot R. (2007), “Measuring Social Cohesion: An Experiment Using The Canadian National Survey of Giving, Volunteering, and Participating”, *Social Indicators Research* 80: 461-492.

United Nations Development Program (2009), “*Human Development Report 2009.*” <http://hdr.undp.org/en/statistics/data/mobility/>; accessed on April 26 2011.

8 Annexes

Annex 1

Table 1: Definitions of the used variables

Variables	Definitions		
Global SWB	Global SWB	Weighted sum of the happy and satisfaction variables	3.5: lowest level of global SWB; 20: highest level of global SWB
Income	Individual's household income	Dichotomous variable with values of 1 or 2	1: income below 3,000 €/month; 2: 3,000 and more
Subjective appraisal of income (aflu043)		Values from 1 to 7	1: lowest level of satisfaction; 7: highest level of satisfaction
Formal ch. economic domain 1 (formaleco1)	Formal character of the economic domain of social	Values from 6.33 to 30	6.33: preference for equality; 30: preference for meri-

Formal ch. economic domain 2 (formaleco2)	cohesion Formal character of the economic domain of social cohesion	Values from 8.5 to 33	tocracy 8.5: preference for meritocracy with labor market participation; 33: preference for equality without labor market participation
Actif	Being active in the labor market	Values from 0 to 2	0: being active; 1: being inactive; 2 being unemployed
Tinstitutions	Trust in institutions	values from 14 to 56	14: lowest level of trust; 56: highest level of trust
Solidarity	Feeling concerned about people in one's surroundings	values from 7 to 35	7: lowest feeling; 35 highest feeling
Polpart	Political participation	values from 10 to 34	10: lowest participation; 34 highest participation
Socculpart	Socio-cultural participation	values from 0 to 20	0: lowest participation; 20 highest participation
Socrel	Social relations	values from 3 to 16	3: lowest level of relations; 16 highest level of relations
Trustpeople	Trust in people	values from 2 to 100	2: lowest level; 100 highest level
A003	Importance of leisure	values from 1 to 4	1: highest importance; 4: lowest importance
Gender		values from 1 to 2	1: male; 2: female
Age		values from 18 to 88	
Agesq	Age squared		
Couple	Living as a couple (married or not)	values from 0 to 1	0: no; 1: yes
Nation	Nationality	values from 1 to 2	1: Luxembourger; 2: foreigner
Child	At least one child is living in the household	values from 0 to 1	0: no; 1: yes
Scol	Level of education	values from 1 to 4	1: lowest level; 4: highest level
Religious	Being religious	values from 0 to 1	0: no; 1: yes
Townsize	Number of Inhabitants	values from 0 to 1	0: less than 10,000; 1: 10,000 and more
Fin crisis	Month of the interview	values from 1 to 12	
Health	Subjective health status	values from 1 to 5	1: very good; 5: very bad
Happy	Happiness	values from 1 to 4	1: lowest level; 4: highest level
Satisfaction	Satisfaction with life	values from 1 to 10	1: lowest level; 10: highest level
Global	Global SWB	values from 3.5 to 20 (Sum of the values of the variables Happy and Satisfaction)	3.5: lowest level; 20: highest level

Annex 2

Gross results for happiness and earnings functions

```
xi: reg3 (global afv043 formaleco1 formaleco2 i.income i.dependency i.actif tinstitutions solidarity polpart socculpart socrel trustinpeople i.a003 i.afv9 i.sexe age agesq i.couple i.nation2 i.enfant i.scol2 i.religious afv372b) (income formale-
```

```
col formaleco2 i.actif i.dependency tinstitutions solidarity polpart socculpart
socrel trustinpeople i.a003 i.sexe age agesq i.couple i.nation2 i.enfant i.scol2
i.religious i.townsize afv372b) if a005<6&aflu043<8&a165<3&a003<8
```

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
global	1037	32	2.613959	0.3065	457.72	0.0000
income	1037	26	.4171154	0.2437	334.12	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
global						
aflu043	.4182336	.054162	7.72	0.000	.3120781	.5243891
formalecol~1	.0157728	.0200675	0.79	0.432	-.0235587	.0551043
formaleco2~1	-.0512924	.0221813	-2.31	0.021	-.094767	-.0078179
_Iincome_2	.9506433	.1975277	4.81	0.000	.5634962	1.33779
_Idependen~1	.0467584	.2045413	0.23	0.819	-.3541352	.447652
_Iactif_1	.2709312	.225108	1.20	0.229	-.1702724	.7121348
_Iactif_2	-1.467546	.5106782	-2.87	0.004	-2.468457	-.4666354
tinstituti~s	.0328271	.0145498	2.26	0.024	.0043101	.0613441
solidarity	-.0331284	.0166952	-1.98	0.047	-.0658504	-.0004065
polpart	-.0212792	.0216994	-0.98	0.327	-.0638092	.0212509
socculpart	.0407846	.0398363	1.02	0.306	-.0372931	.1188623
socrel	.0831964	.0361205	2.30	0.021	.0124016	.1539913
trustinpeo~e	.0248701	.0095875	2.59	0.009	.0060789	.0436612
_Ia003_2	-.4471726	.1812524	-2.47	0.014	-.8024208	-.0919244
_Ia003_3	-1.044211	.29217	-3.57	0.000	-1.616853	-.4715681
_Ia003_4	-1.380131	.8369813	-1.65	0.099	-3.020584	.2603223
_Ia003_8	(omitted)					
_Ia003_9	(omitted)					
_Iafv9_2	-1.017582	.1956398	-5.20	0.000	-1.401029	-.6341352
_Iafv9_3	-1.939155	.2619049	-7.40	0.000	-2.452479	-1.425831
_Iafv9_4	-2.868152	.5153312	-5.57	0.000	-3.878182	-1.858121
_Iafv9_5	-5.274884	1.078719	-4.89	0.000	-7.389135	-3.160634

_Iafv9_8		-1.24167	2.639861	-0.47	0.638	-6.415702	3.932362
_Isexe_2		.0145805	.1764471	0.08	0.934	-.3312494	.3604104
age		-.0929561	.0333822	-2.78	0.005	-.1583839	-.0275282
agesq		.0010751	.0003556	3.02	0.002	.0003782	.0017721
_Icouple_1		.7530774	.2070069	3.64	0.000	.3473513	1.158804
_Ination2_2		-.0928979	.1898565	-0.49	0.625	-.4650097	.279214
_Ichild_2		.1093633	.2309584	0.47	0.636	-.3433067	.5620334
_Iscol2_2		.2937612	.2692198	1.09	0.275	-.2338999	.8214223
_Iscol2_3		-.2154516	.2553794	-0.84	0.399	-.715986	.2850829
_Iscol2_4		-.1684743	.278915	-0.60	0.546	-.7151377	.3781891
_Ireligiou~1		-.1235466	.1772626	-0.70	0.486	-.470975	.2238818
Fincrisis		-.091918	.0463246	-1.98	0.047	-.1827126	-.0011234
_cons		15.79792	1.284997	12.29	0.000	13.27938	18.31647
-----+-----							
income							
formalecol~1		.0058956	.0031956	1.84	0.065	-.0003677	.0121589
formaleco2~1		.0090241	.0035237	2.56	0.010	.0021178	.0159304
_Iactif_1		.0122368	.0357526	0.34	0.732	-.0578371	.0823107
_Iactif_2		-.0943482	.0801274	-1.18	0.239	-.2513949	.0626986
_Idependen~1		.1859062	.0320057	5.81	0.000	.1231762	.2486361
tinstitutifs		.0037246	.002289	1.63	0.104	-.0007617	.0082109
solidarity		-.0065055	.0026438	-2.46	0.014	-.0116874	-.0013237
polpart		.0118056	.0034339	3.44	0.001	.0050754	.0185358
socculpart		-.0039952	.0063486	-0.63	0.529	-.0164382	.0084478
socrel		.0038653	.0057176	0.68	0.499	-.0073409	.0150716
trustinpeo~e		-.000468	.001524	-0.31	0.759	-.0034551	.0025191
_Ia003_2		-.0165538	.028867	-0.57	0.566	-.0731321	.0400245
_Ia003_3		-.0470439	.0463736	-1.01	0.310	-.1379344	.0438466
_Ia003_4		.0157951	.1306853	0.12	0.904	-.2403435	.2719337
_Ia003_8		(omitted)					
_Ia003_9		(omitted)					
_Isexe_2		-.0323602	.0280807	-1.15	0.249	-.0873975	.022677
age		.0130559	.0052711	2.48	0.013	.0027248	.023387
agesq		-.0001438	.0000563	-2.55	0.011	-.0002541	-.0000334

_Icouple_1		.2534932	.0316962	8.00	0.000	.1913699	.3156166
_Ination2_2		-.1092941	.029855	-3.66	0.000	-.1678089	-.0507794
_Ichild_2		-.1195267	.0364428	-3.28	0.001	-.1909532	-.0481003
_Iscol2_2		.1251653	.0427009	2.93	0.003	.041473	.2088575
_Iscol2_3		.1891227	.0400509	4.72	0.000	.1106244	.2676211
_Iscol2_4		.3036611	.0429861	7.06	0.000	.2194098	.3879123
_Ireligiou~1		.054627	.0282022	1.94	0.053	-.0006483	.1099023
_Itownsize_1		-.110216	.0274048	-4.02	0.000	-.1639284	-.0565036
Fincrisis		-.0007771	.0074265	-0.10	0.917	-.0153328	.0137787
_cons		.6314288	.2022763	3.12	0.002	.2349745	1.027883

Endogenous variables: global income

Exogenous variables: afllu043 formalecol formaleco2 _Iincome_2 _Idependenc_1
_Iactif_1 _Iactif_2 tinstitutions solidarity polpart socculpart socrel trustin-
people _Ia003_2 _Ia003_3 _Ia003_4 _Ia003_8 _Ia003_9 _Iafv9_2 _Iafv9_3 _Iafv9_4
_Iafv9_5 _Iafv9_8 _Isexe_2 age agesq _Icouple_1 _Ination2_2 _Ichild_2 _Iscol2_2
_Iscol2_3 _Iscol2_4 _Ireligious_1 afv372b _Itownsize_1

xi: reg3 (happy afllu043 formalecol formaleco2 i.income i.dependency i.actif tinsti-
tutions solidarity polpart socculpart socrel trustinpeople i.a003 i.afv9 i.sexe age
agesq i.couple i.nation2 i.enfant i.scol2 i.religious afv372b) (income formale-
colPaul formaleco2Paul i.actif i.dependency tinstitutions solidarity polpart soc-
culpart socrel trustinpeople i.a003 i.sexe age agesq i.couple i.nation2 i.enfant
i.scol2 i.religious i.townsize afv372b) if a005<6&afllu043<8&a165<3&a003<8

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
happy	1037	32	.5311355	0.2387	325.66	0.0000
income	1037	26	.4171154	0.2437	334.12	0.0000

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
happy						
afllu043		.0541263	.0110053	4.92	0.000	.0325564 .0756963
formalecol~1		.0014923	.0040775	0.37	0.714	-.0064995 .0094842
formaleco2~1		-.0087446	.0045071	-1.94	0.052	-.0175783 .000089
_Iincome_2		.1438143	.040136	3.58	0.000	.0651492 .2224795
_Idependen~1		.0062135	.0415612	0.15	0.881	-.0752449 .0876719

_Iactif_1		.0167915	.0457401	0.37	0.714	-.0728575	.1064406
_Iactif_2		-.107927	.1037657	-1.04	0.298	-.3113041	.09545
tinstituti~s		.0043084	.0029564	1.46	0.145	-.0014861	.0101028
solidarity		-.0032021	.0033923	-0.94	0.345	-.0098509	.0034467
polpart		-.0036267	.0044091	-0.82	0.411	-.0122685	.005015
socculpart		.0111728	.0080944	1.38	0.167	-.004692	.0270376
socrel		.010336	.0073394	1.41	0.159	-.004049	.0247209
trustinpeo~e		.0030229	.0019481	1.55	0.121	-.0007953	.0068411
_Ia003_2		-.1001134	.036829	-2.72	0.007	-.172297	-.0279298
_Ia003_3		-.2561493	.0593666	-4.31	0.000	-.3725057	-.1397929
_Ia003_4		-.4358168	.1700679	-2.56	0.010	-.7691437	-.1024899
_Ia003_8		(omitted)					
_Ia003_9		(omitted)					
_Iafv9_2		-.2004747	.0397524	-5.04	0.000	-.278388	-.1225614
_Iafv9_3		-.3495593	.0532169	-6.57	0.000	-.4538626	-.245256
_Iafv9_4		-.6290186	.1047111	-6.01	0.000	-.8342486	-.4237886
_Iafv9_5		-1.059342	.2191869	-4.83	0.000	-1.488941	-.6297437
_Iafv9_8		-.6025812	.5363983	-1.12	0.261	-1.653902	.4487401
_Isexe_2		.0706444	.0358526	1.97	0.049	.0003745	.1409143
age		-.0205699	.006783	-3.03	0.002	-.0338644	-.0072755
agesq		.0002003	.0000723	2.77	0.006	.0000586	.0003419
_Icouple_1		.1778601	.0420621	4.23	0.000	.0954198	.2603004
_Ination2_2		.0573628	.0385773	1.49	0.137	-.0182473	.1329729
_Ichild_2		.0418322	.0469289	0.89	0.373	-.0501467	.1338111
_Iscol2_2		.0018748	.0547033	0.03	0.973	-.1053417	.1090913
_Iscol2_3		-.1190218	.051891	-2.29	0.022	-.2207264	-.0173173
_Iscol2_4		-.0549689	.0566733	-0.97	0.332	-.1660465	.0561087
_Ireligiou~1		-.0238952	.0360183	-0.66	0.507	-.0944899	.0466994
Fincrisis		-.021864	.0094128	-2.32	0.020	-.0403127	-.0034153
_cons		3.621018	.261101	13.87	0.000	3.10927	4.132767
-----+-----							
income							
formaleco1~1		.0058956	.0031956	1.84	0.065	-.0003676	.0121589
formaleco2~1		.0090242	.0035237	2.56	0.010	.0021178	.0159305

_Iactif_1		.0122367	.0357526	0.34	0.732	-.0578371	.0823106
_Iactif_2		-.0943483	.0801274	-1.18	0.239	-.251395	.0626985
_Idependen~1		.1859053	.0320057	5.81	0.000	.1231754	.2486353
tinstitutions		.0037246	.002289	1.63	0.104	-.0007617	.008211
solidarity		-.0065055	.0026438	-2.46	0.014	-.0116874	-.0013237
polpart		.0118056	.0034339	3.44	0.001	.0050754	.0185358
socculpart		-.0039953	.0063486	-0.63	0.529	-.0164383	.0084478
socrel		.0038653	.0057176	0.68	0.499	-.0073409	.0150715
trustinpeople		-.000468	.001524	-0.31	0.759	-.0034551	.0025191
_Ia003_2		-.0165536	.028867	-0.57	0.566	-.0731319	.0400247
_Ia003_3		-.0470438	.0463736	-1.01	0.310	-.1379343	.0438468
_Ia003_4		.0157941	.1306853	0.12	0.904	-.2403445	.2719327
_Ia003_8		(omitted)					
_Ia003_9		(omitted)					
_Isexe_2		-.0323601	.0280807	-1.15	0.249	-.0873974	.0226771
age		.0130559	.0052711	2.48	0.013	.0027248	.023387
agesq		-.0001438	.0000563	-2.55	0.011	-.0002541	-.0000334
_Icouple_1		.2534931	.0316962	8.00	0.000	.1913698	.3156164
_Ination2_2		-.1092937	.029855	-3.66	0.000	-.1678085	-.0507789
_Ichild_2		-.1195264	.0364428	-3.28	0.001	-.1909529	-.0480999
_Iscol2_2		.1251648	.0427009	2.93	0.003	.0414725	.208857
_Iscol2_3		.1891225	.0400509	4.72	0.000	.1106241	.2676209
_Iscol2_4		.303661	.0429861	7.06	0.000	.2194098	.3879123
_Ireligious_1		.0546271	.0282022	1.94	0.053	-.0006482	.1099024
_Itownsize_1		-.1102213	.0274048	-4.02	0.000	-.1639336	-.0565089
Fin_crisis		-.0007772	.0074265	-0.10	0.917	-.015333	.0137785
_cons		.6314317	.2022763	3.12	0.002	.2349774	1.027886

Endogenous variables: happy income

Exogenous variables: afu043 formaleco1 formaleco2 _Iincome_2 _Idependen~1
_Iactif_1 _Iactif_2 tinstitutions solidarity polpart socculpart socrel trustin-
people _Ia003_2 _Ia003_3 _Ia003_4 _Ia003_8 _Ia003_9 _Iafv9_2 _Iafv9_3 _Iafv9_4
_Iafv9_5 _Iafv9_8 _Isexe_2 age agesq _Icouple_1 _Ination2_2 _Ichild_2 _Iscol2_2
_Iscol2_3 _Iscol2_4 _Ireligious_1 afv372b _Itownsize_1

```
xi: reg3 (satisfaction afllu043 formalecol formaleco2 i.income i.dependency i.actif
tinstitutions solidarity polpart socculpart socrel trustinpeople i.a003 i.afv9
i.sexe age agesq i.couple i.nation2 i.enfant i.scol2 i.religious afv372b) (income
formalecol formaleco2 i.actif i.dependency tinstitutions solidarity polpart soccul-
part socrel trustinpeople i.a003 i.sexe age agesq i.couple i.nation2 i.enfant
i.scol2 i.religious i.townsize afv372b) if a005<6&afllu043<8&a165<3&a003<8
```

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
satisfaction	1038	32	1.776381	0.2689	380.54	0.0000
income	1038	26	.4171637	0.2432	333.55	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
satisfaction						
afllu043	.2820757	.0368015	7.66	0.000	.209946	.3542054
formalecol~1	.0116637	.0136344	0.86	0.392	-.0150593	.0383867
formaleco2~1	-.0288774	.0150679	-1.92	0.055	-.0584101	.0006552
_Iincome_2	.5874125	.134187	4.38	0.000	.3244109	.8504142
_Idependen~1	.0182746	.1386734	0.13	0.895	-.2535203	.2900695
_Iactif_1	.2443788	.1525399	1.60	0.109	-.054594	.5433515
_Iactif_2	-1.199007	.3470415	-3.45	0.001	-1.879196	-.5188182
tinstituti~s	.0216385	.0098827	2.19	0.029	.0022687	.0410083
solidarity	-.0241008	.0113201	-2.13	0.033	-.0462877	-.0019139
polpart	-.0124458	.0147454	-0.84	0.399	-.0413462	.0164546
socculpart	.0133813	.0270688	0.49	0.621	-.0396725	.0664352
socrel	.0563093	.0245341	2.30	0.022	.0082234	.1043953
trustinpeo~e	.017113	.0065137	2.63	0.009	.0043464	.0298796
_Ia003_2	-.196328	.1231735	-1.59	0.111	-.4377437	.0450877
_Ia003_3	-.4255972	.1978782	-2.15	0.031	-.8134313	-.037763
_Ia003_4	-.3009543	.568737	-0.53	0.597	-1.415658	.8137498
_Ia003_8	(omitted)					
_Ia003_9	(omitted)					
_Iafv9_2	-.5212944	.1329006	-3.92	0.000	-.7817747	-.2608141
_Iafv9_3	-1.065525	.1779827	-5.99	0.000	-1.414365	-.7166853

_Iafv9_4		-1.298858	.3501953	-3.71	0.000	-1.985228	-.6124876
_Iafv9_5		-2.632691	.7330514	-3.59	0.000	-4.069445	-1.195936
_Iafv9_8		.2530146	1.79395	0.14	0.888	-3.263063	3.769092
_Isexe_2		-.1619383	.1199086	-1.35	0.177	-.3969549	.0730783
age		-.0412113	.0226842	-1.82	0.069	-.0856715	.003249
agesq		.0005637	.0002415	2.33	0.020	.0000903	.001037
_Icouple_1		.3176812	.1404955	2.26	0.024	.0423152	.5930473
_Ination2_2		-.2432462	.1289129	-1.89	0.059	-.4959109	.0094185
_Ichild_2		.0136345	.1568174	0.09	0.931	-.2937219	.3209909
_Iscol2_2		.2848167	.1829285	1.56	0.119	-.0737165	.6433499
_Iscol2_3		.0709839	.1733563	0.41	0.682	-.2687881	.410756
_Iscol2_4		-.0325996	.1895408	-0.17	0.863	-.4040927	.3388935
_Ireligiou~1		-.0600496	.120429	-0.50	0.618	-.2960861	.175987
Fincrisis		-.0365306	.0314762	-1.16	0.246	-.0982228	.0251616
_cons		6.765512	.8731246	7.75	0.000	5.054219	8.476805
-----+-----							
income							
formaleco1~1		.005962	.0031954	1.87	0.062	-.000301	.0122249
formaleco2~1		.0089185	.0035228	2.53	0.011	.0020139	.0158232
_Iactif_1		.0091834	.0356516	0.26	0.797	-.0606924	.0790592
_Iactif_2		-.0942858	.0801366	-1.18	0.239	-.2513507	.0627791
_Idependen~1		.1886883	.0319112	5.91	0.000	.1261434	.2512331
tinstitutit~s		.0038061	.0022881	1.66	0.096	-.0006784	.0082907
solidarity		-.0067078	.0026379	-2.54	0.011	-.011878	-.0015376
polpart		.011863	.0034339	3.45	0.001	.0051328	.0185933
socculpart		-.0040807	.0063489	-0.64	0.520	-.0165242	.0083629
socrel		.004097	.0057144	0.72	0.473	-.0071031	.0152971
trustinpeo~e		-.0004265	.0015238	-0.28	0.780	-.003413	.00256
_Ia003_2		-.0166883	.0288701	-0.58	0.563	-.0732726	.039896
_Ia003_3		-.0427939	.0462218	-0.93	0.355	-.133387	.0477991
_Ia003_4		.0181128	.1306838	0.14	0.890	-.2380227	.2742483
_Ia003_8		(omitted)					
_Ia003_9		(omitted)					
_Isexe_2		-.032413	.0280839	-1.15	0.248	-.0874565	.0226305

age	.0130151	.0052715	2.47	0.014	.0026831	.0233472
agesq	-.0001418	.0000563	-2.52	0.012	-.0002521	-.0000315
_Icouple_1	.2518535	.0316657	7.95	0.000	.1897899	.3139171
_Ination2_2	-.1082084	.0298427	-3.63	0.000	-.166699	-.0497178
_Ichild_2	-.1213097	.0364117	-3.33	0.001	-.1926753	-.0499441
_Iscol2_2	.1262903	.0426938	2.96	0.003	.0426119	.2099686
_Iscol2_3	.1916293	.0399922	4.79	0.000	.113246	.2700125
_Iscol2_4	.3043248	.042987	7.08	0.000	.220072	.3885777
_Ireligiou~1	.0539365	.0281986	1.91	0.056	-.0013318	.1092048
_Itownsize_1	-.109086	.0273875	-3.98	0.000	-.1627646	-.0554075
Fincrisis	-.0008705	.0074269	-0.12	0.907	-.015427	.0136861
_cons	.6271955	.2022636	3.10	0.002	.2307661	1.023625

Endogenous variables: satisfaction income

Exogenous variables: aflu043 formaleco1 formaleco2 _Iincome_2 _Idependenc_1
_Iactif_1 _Iactif_2 tinstitutions solidarity polpart socculpart socrel trustin-
people _Ia003_2 _Ia003_3 _Ia003_4 _Ia003_8 _Ia003_9 _Iafv9_2 _Iafv9_3 _Iafv9_4
_Iafv9_5 _Iafv9_8 _Isexe_2 age agesq _Icouple_1 _Ination2_2 _Ichild_2 _Iscol2_2
_Iscol2_3 _Iscol2_4 _Ireligious_1 afv372b _Itownsize_1



3, avenue de la Fonte
L-4364 Esch-sur-Alzette
Tél.: +352 58.58.55-801
www.ceps.lu