

WORKING PAPERS

**Do we need social cohesion
to be happy?**

Carlo KLEIN

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Au niveau national, cette enquête fait partie du projet de recherche VALCOS (Valeurs et Cohésion sociale), cofinancé par le FNR dans le cadre du programme VIVRE. Au niveau international, elle est partie intégrante d'une enquête réalisée dans 45 pays européens qui a pour objectif d'identifier et d'expliquer en Europe les dynamiques de changements de valeurs, et d'explorer les valeurs morales et sociales qui sous-tendent les institutions sociales et politiques européennes (www.europeanvaluesstudy.eu).

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Do we need social cohesion to be happy?¹

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Abstract

We consider in a first step, that social cohesion will be a determinant of income and, in a second step, income will be a determinant of subjective well-being (SWB) along with social cohesion. We propose to use the weighted Three-Stage Least Squares (3SLS) method to estimate our two steps model, based on EVS wave 2008 data for Luxembourg. The impact of social cohesion on SWB is confirmed by the effect of the socio-cultural domain of social cohesion on SWB. The formal character of the political domain, has a positive impact on SWB. Considering the economic aspect of social cohesion we conclude that this domain should be included in any further research studying the relationship between social cohesion and SWB.

Nous considérons dans une première étape que la cohésion sociale sera un déterminant du revenu individuel et dans une deuxième étape que le revenu individuel sera un déterminant du bien-être subjectif à côté de la cohésion sociale. Nous proposons d'estimer ce modèle en appliquant la méthode « des triples moindres carrés pondérés (3SLS) » aux données EVS 2008 pour le Luxembourg. L'impact de la cohésion sociale sur le bien-être subjectif est confirmé par l'effet du domaine socio-culturel de la cohésion sociale sur le bien-être subjectif. De même, le caractère formel du domaine politique de la cohésion sociale a un effet positif sur le bien-être subjectif. En considérant l'aspect économique de la cohésion sociale, nous concluons que ce domaine devrait être inclus dans toute recherche future concernant la relation entre cohésion sociale et bien-être subjectif.

Keywords: subjective well-being ; social cohesion ; European Value Study wave 2008 Luxembourg

JEL classification codes: A1 ; D6 ; I3

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1. Introduction

The sociological and political concept of social cohesion has been used since the 1990s by policy makers in the developed countries (Hulse and Stone; 2007). In this context, social cohesion can be seen 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. In this sense, social cohesion shall not be considered as a final aim of any social policy, but social cohesion shall be a means, among others, to improve material and non material well-being. It is obvious to us that well-being should be (at least one of) the ultimate goal(s) in life and that economic theory should contribute to the attainment of this goal(s).

Based on this statement, our main interest in this paper focuses on the relationship between social cohesion and well-being from the economist's point of view. This relationship can be analyzed following Osberg's (2003) assumption that any cooperation between economic agents is 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 social cohesion. 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. From the sociologist's or political scientist's point of view there should even be a direct link between social cohesion and general well-being. So our general assumption, based on different approaches in the social sciences, will be that social cohesion has a direct and an indirect effect, via economic output, on well-being.

To develop the consequences of this basic assumption we will consider elements of happiness economics.

Microeconomic studies in happiness economics, especially those discussing the Easterlin paradox, highlight the importance of absolute and relative income on individual well-being whereas the macroeconomic studies consider the effect of unemployment and inflation rates on individual happiness.

Other studies in the same domain have analyzed the relationship considering more sociological variables than economic variables as determinants of individual happiness. In this context, variables as age, marriage, religion, health status have been considered.

A last category of studies considered the impact of political institutions on well-being².

² Overviews of all these studies can be found in Frey and Stutzer, 2002a and 2002b, Clark and al., 2008, Frey, 2008.

As far as we know, none of these studies have considered the impact of social cohesion on individual well-being even if some elements of social cohesion have explicitly or implicitly been considered. Nevertheless some economists, and other social scientists, consider certain variables as having an influence on SWB as for example trust or political participation (Frey, 2008). These variables are elements of social cohesion and so it will be interesting to compare the results of our analysis to the results of these previous studies.

To test the relationship between SWB and social cohesion, we will use the theoretical context of happiness economics and then evaluated these theoretical concepts by empirical data for Luxembourg from the 2008 European Value Study (EVS) survey.

Our paper will be organized as follows. Section 2 will define the concept of social cohesion. Then, section 3 will present the different measurements of social cohesion, section 4 will discuss the notion of subjective well-being, section 5 its measurements, section 6 present a theoretical model of the relationship between well-being and social cohesion; section 7 presents the data and the empirical results. A final section will present some concluding remarks.

2. Social cohesion in an economic context

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).

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 behavioural manifestations”.

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 faces: the concept is based on the analysis of data and it is left vague to be adaptable to various situations.

In an economic context we find the 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 characteristic of the individual and on the global level we have social cohesion as a characteristic of a society or of a community. This definition implicitly rejoins the sociologists’ definitions of social capital considered as relationships among individuals and memberships in social networks (Bourdieu 1986, Coleman 1990). The advantage of Dayton-Johnson’s definition is the fact that he emphasises on the two levels of analysis and therefore allows us to build a model based on microdata to analyse social cohesion whereas the sociological definitions mainly consider a macrolevel of analysis.

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

In spite of the difficulties to define the concept of social cohesion in a precise way, we still think that it is important to consider its implications in an economic context as it is considered as a basic political concept used by different international organizations (European Commission, Council of Europe, 2008, OECD, 2009).

3. The measurement of social cohesion

Before we can put this concept in the context of an empirical economic analysis we have to answer the question how social cohesion can be measured. Different dimensions of social cohesion have been proposed by researchers working on social cohesion. 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’ behaviours. Compared to Jenson, Bernard adds the economic domain and as a substantial character the opposition Equality/inequality. More recently, Chan et al. (2006) present 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 (behavioural manifestations) component.

On a 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).

On a micro level and closer to the previous sociological definitions of social cohesion, recent measurement methods have been proposed by Rajulton et al. (2007) and Dickes et al. (2008, 2009).

Both 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).

These micro indicators (factor scores) should allow us to analyze the relationship between subjective well-being, the standard economic variables as income and social cohesion. Our assumption will be that subjective well-being should depend on economic variables, as assumed by the standard economic literature, but also on social cohesion.

If we consider now, that this social context of economic decisions is important, then the question remains what will be the impact of the concept of social cohesion on economic outcome and how do we measure this impact? The theoretical framework of happiness economics adds to this question the idea that there should be a link between social cohesion, economic output and subjective well-being as already highlighted by Osberg (2003).

4. Well-being in an economic context

Generally, the economic analysis of human behaviour focuses on the individual satisfaction by means of consumption of material goods and services. This relationship between individual satisfaction and consumption is 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.”

Therefore we will consider that a utility function that can be empirically estimated by a subjective happiness function that we will present in section 6. We also have to consider that in the economic literature three different concepts of utility are presented (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).

As different concepts of utility are defined, 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.

5. The measurement of SWB in surveys

Two standard questions can generally be found in survey 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).

Even if economists consider happiness and life satisfaction as synonyms (Frey and Stutzer, 2002b), 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.

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)

6. A simple model of subjective well-being and social cohesion

We consider that, from an economic point of view, individual subjective well-being (SWB) will first depend on the individual’s 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 behaviour to their own levels of income.

If we introduce now Osberg’s assumption that economic outcome is influenced by social cohesion, then we have to consider that social cohesion influences the level of income as income will be considered as a proxy of economic outcome on the individual level. This assumption is based on the fact that we consider a one period model with no saving. 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 should have a direct influence on SWB, so that we have to consider a two steps model to analyse the impact of social cohesion on subjective well-being: In a first step, social cohesion will be a determinant of income (equation 1) and, in a second step, income will be a determinant of SWB along with social cohesion (equation 2).

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

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

where the absolute income AI will be a function of social cohesion SC and of some control variables z. ε_1 represents the error term.

and

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

where SWB will be a function of absolute income AI, relative income RI, social cohesion SC, 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.

With this specification, we have to assume that the error terms ε_1 and ε_2 of both equations are correlated.

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 4.

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 favour of the 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).

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.

7. Empirical analysis based on European Values Study (EVS) data

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 2008³.

7.1. The empirical happiness function

Our dependent variables will be the answers to the standard SWB questions presented in section 5 and the computed composite indicator “global” being the sum of the scores from the two previous answers.

Then, the explanatory variables have been grouped in four categories: income variables, social cohesion variables, one social capital variable and other control variables.

In this paper, our theoretical position will be close to Bernard's (1999) and Rajulton et al.'s (2006) because we consider that we cannot analyse the impact of social cohesion on well-being without considering the 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 microdata. For this reason, we use simple variables of income, one variable for absolute and one for relative income, to consider the economic impact on SWB.

The absolute income is measured by different levels of households' net income.

Apart from absolute income, we also consider relative income. To take into account the individuals' adaptations to and aspiration levels of income we have used the EVS question on satisfaction with income (Clark et al., 2008) : “Are you satisfied with your income?”

The social cohesion variables are based on Jenson's (1998) and Bernard's (1999) theoretical dimensions of social cohesion and on Dickes et al.'s (2008, 2009) empirical indicators. The used social cohesion variables are based on Dickes (2009), but they 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. Five variables have been computed based on the EVS 2008 data for Luxembourg : "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.

³ For a detailed presentation of the EVS studies, see: <http://www.europeanvaluesstudy.eu/>

As already mentioned before, Dickes et al. for computational reasons and Chan et al. (2006) for theoretical reasons, are not considering the economic dimension of social cohesion.

To take into account the fact that social cohesion is linked to social capital (Dayton-Johnson, 2003), and that, in our eyes, trust in other people is an important variable neglected by Bernard, we have added this variable as an explanatory variable to complete the measure of social capital ("social relations") already included in the social cohesion indicators.

Finally, we consider a certain number of control variables having an impact on SWB (Frey and Stutzer, 2002b, Frey, 2008): subjective importance of leisure, subjective health status, gender, age, couple, nationality, having at least one child, level of education, being religious, and the fact of living in a couple. 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.

7.2. The empirical earnings function

In the second equation of our model we consider the determinants of the levels of the incomes. So, the dependent variable is the household's levels of net income and this variable is regressed on the same explanatory variables than our subjective happiness function. There are only two changes: first, the subjective health status variable has been dropped for this equation as we consider that a subjective appraisal of one's health status does not represent an objective indicator of investment in human capital or health. Second, a variable considering the town size has been added to take into account that incomes may vary depending on the fact that a household is living in an urban area or in a rural area.

7.3. 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 1 056 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	1 056	11.16	2.42	2	14
Happiness	1 056	3.32	0.61	1	4
Life satisfaction	1 056	7.83	2.06	1	10
Levels of net income	1 056	9.27	2.39	2	14
Satisfaction with income	1 056	5.29	1.88	1	9
Trust in institutions	1 056	38.23	6.28	14	55
Solidarity	1 056	20.55	5.17	7	35
Political part.	1 056	18.68	4.43	10	34

Social & cultural part.	1 056	1.28	2.22	0	20
Social relations	1 056	8.47	2.71	3	16
Trust in people	1 056	1.95	1.38	1	9
Age	1 056	41.64	17.07	18	88

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: 87 % declare at least a level of 6 out of 10 on the satisfaction scale and also 87 % declare a global satisfaction higher than 8 out of 14.

To present firstly some basic relations between our different dependent variables and the social cohesion variables, we have grouped, for each variable, all the items in two categories to obtain dichotomous variables. Doing this, we can have a first appreciation concerning social cohesion differences between people declaring high levels of SWB and people declaring low levels of SWB. So, we observe that people declaring a higher level of SWB also show a higher degree of confidence in institutions (70% versus 54 - 61% for people declaring lower levels of SWB), of political participation (26 % versus 20 %) and of social relations (35 % versus 21 %), but a slightly lower degree of solidarity (53% versus 55-59 %). For the social and cultural participation there is no significant difference in behaviour between people declaring high or low levels of SWB (only 2 – 3 % of each group are participants in social or cultural activities).

Concerning income, we observe that people declaring higher levels of SWB also have higher levels of income (78 - 80 % versus 58 - 63 %) and are more satisfied with their income (83 - 87 % versus 53 – 58 %) than people declaring lower levels of SWB.

After these descriptive results we present now our regressions for the three dependent variables, the global SWB indicator, the happiness variable and the life satisfaction variable. For each dependent variable that we have considered, a first table shows the determinants of the earnings function and a following table gives the results for the subjective happiness function. As our main focus concerns the impact of social cohesion on income and SWB, we omit the presentation of the control variables⁴.

7.3.1. The case of global subjective well-being

Table 2: Determinants of absolute income in the case of subjective well-being measured by a global indicator (happiness and satisfaction)

	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]
Trust in institutions	0.019	0.011	1.77	0.08	[-0.002; 0.040]

⁴ These omitted results can be obtained from the author.

Solidarity	-0.025	0.012	-1.97	0.05	[-0.049; -0.000]
Political part.	0.046	0.016	2.89	0.00	[0.015; 0.078]
Social & cultural part.	-0.027	0.030	-0.89	0.38	[-0.085; 0.032]
Trust in people	-0.280	0.140	-2.01	0.05	[-0.555; -0.007]
Observations	1 056	“R ² ” = 0.30			

The first specification of our model considers the emotional and the cognitive aspect of life evaluation through our global indicator of SWB.

If we consider first the impact of social cohesion on income, we observe that both the formal and the substantial character of the political domain have a positive impact on income whereas the formal character of the socio-cultural domain has a negative impact on income. This means that people trusting institutions (at a 10 percent level of statistical significance) and participating in political actions have higher incomes than those who are not trusting institutions and having no political participations. On the other hand people showing a high degree of solidarity have lower incomes than people with low degrees of solidarity. An interesting result is the fact that being trustful against other people lowers the individuals' incomes!

Table 3: Determinants of subjective well-being (SWB); dependent variable: Global

	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]
Levels of net income	0.013	0.266	0.05	0.96	[-0.509; 0.534]
Satisfaction with income	0.356	0.077	4.61	0.00	[0.205; 0.507]
Trust in institutions	0.031	0.012	2.64	0.01	[0.008; 0.053]
Solidarity	-0.032	0.014	-2.29	0.02	[-0.060; -0.005]
Political part.	-0.009	0.020	-0.43	0.67	[-0.049; 0.032]
Social & cultural part.	0.034	0.032	1.07	0.28	[-0.028; 0.097]
Social relations	0.059	0.029	2.01	0.05	[0.001; 0.117]
Trust in people	-0.057	0.164	-0.35	0.73	[-0.379; 0.264]
Observations	1 056	“R ² ” = 0.28			

If we consider now the determinants of SWB, we observe that absolute income has no statistically significant impact on SWB (even if we skip the subjective appraisal of income variable) in this model where the income is estimated by the 3 SLS method. Nevertheless the subjective appraisal of income, considered as a proxy for relative income, is linked to SWB: the more the individual is satisfied with

his income the higher his level of SWB. The pattern of relationship between the social cohesion domains and SWB is this time different than in the previous case where we considered the relationship between social cohesion and income. For SWB the socio-cultural domain is the most important and has a positive impact on SWB (as well its substantial, social relations, as its formal character, solidarity). For the political domain, only the formal character, trust in institutions, has a positive impact on SWB. Our supplementary indicator of social capital, trust in people, has no statistically significant impact on SWB.

7.3.2. The case of subjective happiness

Table 4: Determinants of absolute income in the case of well-being measured by subjective happiness

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Trust in institutions	0.019	0.011	1.74	0.08	[-0.002; 0.040]
Solidarity	-0.024	0.012	-1.92	0.06	[-0.048; -0.001]
Political part.	0.047	0.016	2.92	0.00	[0.015; 0.078]
Social & cultural part.	-0.026	0.030	-0.89	0.38	[-0.085; 0.032]
Trust in people	-0.283	0.140	-2.02	0.04	[-0.557; -0.009]
Observations	1 056	“R ² ” = 0.30			

If we consider now only happiness, the emotional aspect of life evaluation, as the dependent variable in our model, the general results remain the same. The formal and the substantial character of the political domain have again a positive impact on income whereas the formal character of the socio-cultural domain has a negative impact on income (at a 10 percent level of statistical significance). Again, trust in people has a negative impact on SWB.

Table 5: Determinants of subjective well-being (SWB); dependent variable: Happy

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Levels of net income	0.056	0.069	0.80	0.42	[-0.080; 0.192]
Satisfaction with income	0.058	0.020	2.88	0.00	[0.019; 0.098]
Trust in institutions	0.005	0.003	1.78	0.08	[-0.001; 0.011]
Solidarity	-0.002	0.004	-0.62	0.53	[-0.009; 0.005]
Political part.	-0.004	0.005	-0.79	0.43	[-0.015; 0.006]
Social & cultural part.	0.014	0.008	1.66	0.10	[-0.002; 0.030]
Social relations	0.011	0.008	1.42	0.16	[-0.004; 0.026]

Trust in people	0.030	0.043	0.70	0.48	[-0.054; 0.114]
Observations	1 056	“R ² ” = 0.23			

The same remark can be made for our main equation: absolute income has no statistically significant impact on SWB but the subjective appraisal of income is again positively linked to SWB. The pattern of relationship between the social cohesion domains and SWB also remains the same. For SWB the substantial character of the socio-cultural domain has a positive impact on SWB. In this case, only the variable of social and cultural participations has a positive impact on SWB (at a 10 percent level of statistical significance). For the political domain, only the formal character, trust in institutions, has a positive impact on SWB (at a 10 percent level of statistical significance). Again, our supplementary indicator of social capital, trust in people, has no statistically significant impact on SWB.

7.3.3. The case of subjective life satisfaction

Table 6: Determinants of absolute income in the case of subjective well-being measured by satisfaction

	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]
Trust in institutions	0.020	0.011	1.92	0.06	[-0.005; 0.041]
Solidarity	-0.025	0.012	-2.03	0.04	[-0.050; -0.001]
Political part.	0.045	0.016	2.84	0.01	[0.014; 0.077]
Social & cultural part.	-0.027	0.030	-0.91	0.36	[-0.086; 0.031]
Trust in people	-0.287	0.140	-2.06	0.04	[-0.561; -0.013]
Observations	1 056	“R ² ” = 0.30			

Table 7: Determinants of subjective well-being (SWB); dependent variable: Satisfaction

	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]
Levels of net income	-0.045	0.232	-0.19	0.85	[-0.500; 0.410]
Satisfaction with income	0.295	0.670	4.41	0.00	[0.164; 0.426]
Trust in institutions	0.027	0.010	2.63	0.01	[0.007; 0.046]
Solidarity	-0.030	0.012	-2.40	0.02	[-0.054; -0.005]
Political part.	-0.007	0.018	-0.37	0.71	[-0.041; 0.028]
Social & cultural part.	0.021	0.028	0.74	0.46	[-0.034; 0.075]
Social relations	0.049	0.026	1.91	0.06	[-0.001; 0.099]
Trust in					

people					
Observations	1 056	"R ² " = 0.25			

If we consider now only general satisfaction with life, the cognitive aspect of life evaluation, as our dependent variable (tables 6 and 7), we obtain results that are statistically more significant than those obtained with our previous specification.

For our earnings function, we can say that the impact of social cohesion on income is the same in our three specifications: It is the political domain of social cohesion that has the most important impact on income. The more the individuals trust institutions and the more they participate in political actions, the higher their incomes, all other things being equal. For the socio-cultural domain, only the formal character has an impact on income. The more the individuals are concerned about other citizens' living conditions the lower are their incomes. A last interesting point is the fact that too much trust in other people lowers one's income.

The results of the second step of our model, the determinants of SWB, give only evidence for the importance of relative income, measured by a subjective appraisal of income, as a determinant of SWB. For our social cohesion variables, the socio-cultural dimension seems to be the most important determinant of SWB, but the two characters, formal and substantial, have opposite effects on SWB. Individuals having more social relations are more satisfied in life (at a 10 percent level of statistical significance), but those individuals having a strong feeling of solidarity are less satisfied than those individuals having low feelings of solidarity. The political domain only influences SWB through its formal character: people trusting institutions have higher levels of SWB than people being critical against institutions. Social capital, measured by trust in people, has no statistically significant impact on SWB.

5. Concluding remarks

A general look at our results suggests that the impact of social cohesion on SWB seems to affect more the cognitive aspect than the emotional one as the statistical levels of significance of the estimated coefficients are higher for the global and life satisfaction dependent variables than for the happiness dependent variable.

Our initial assumption that social cohesion has an impact as well on the level of income, as a proxy of economic outcome, and on the level of SWB can be confirmed by these results. Income is influenced by the political domain of social cohesion : political concerned and political active people have higher incomes than other persons. On the other hand, people being more concerned about other people have probably a lower need for higher incomes, so that the formal character of the socio-cultural domain has a negative aspect on individual income. An argument in favour of a rational behaviour, at least in

the economic domain, should be the fact that people having high levels of trust in others (are they naïve?) have lower incomes than those persons having lower levels of trust in others.

The impact of social cohesion on SWB is confirmed by the effect of the socio-cultural domain on the different dependent variables. But the effect of this domain is ambiguous: the formal character of has a negative impact on SWB, whereas the substantial character has a positive impact on this same SWB. Being (too) much concerned about other people's situation seems to deteriorate one's own situation; this fact may be compensated by having personal contacts with other persons or groups of persons.

Trust in political institutions, the formal character of the political domain, has a positive impact on SWB which rejoins the idea presented by Frey (2008) that people are more satisfied when they have the possibility to live in a democratic nation or to participate in the democratic process.

Considering the economic aspect of social cohesion we conclude that this domain should be included in any further research studying the relationship between social cohesion and SWB. Even if the absolute income variable is not statistically significant in our study, the fact that the relative income has an impact on SWB and that the EVS database has not been established for economic purposes, we suggest that better measurements of income and other variables allowing to develop empirical instruments are needed to take into account the economic domain proposed by Bernard (1999). The work of Rajulton et al. (2007) should be a starting point in the right direction.

6. References

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Annexes

Annex 1: The determinants of subjective well-being measured by a global indicator with endogenous absolute income

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
global	1056	29	2.083644	0.2798	390.06	0.0000
afv353	1056	27	1.982179	0.3037	460.61	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
global					
afv353	.012799	.2660212	0.05	0.962	-.5085929 .5341909
aflu043	.3559508	.0771447	4.61	0.000	.20475 .5071515
tinstituti~s	.0305934	.0115859	2.64	0.008	.0078853 .0533014

solidarity		-.0322984	.014078	-2.29	0.022	-.0598908	-.004706
polpart		-.0088814	.0204795	-0.43	0.665	-.0490205	.0312577
socculpart		.0341737	.0318437	1.07	0.283	-.0282387	.0965862
socrel		.0589346	.0293817	2.01	0.045	.0013475	.1165217
a165		-.0571775	.1641091	-0.35	0.728	-.3788254	.2644705
_Ia003_2		-.3040186	.1486417	-2.05	0.041	-.595351	-.0126862
_Ia003_3		-.7119108	.2348697	-3.03	0.002	-1.172247	-.2515746
_Ia003_4		-.8827845	.6385146	-1.38	0.167	-2.13425	.368681
_Iafv9_2		-.7810161	.1582188	-4.94	0.000	-1.091119	-.470913
_Iafv9_3		-1.505534	.2193071	-6.86	0.000	-1.935368	-1.0757
_Iafv9_4		-1.810961	.4862296	-3.72	0.000	-2.763954	-.857969
_Iafv9_5		-3.910795	.8539887	-4.58	0.000	-5.584582	-2.237008
_Iafv9_8		-.3898496	2.095838	-0.19	0.852	-4.497617	3.717918
_Isexe_2		-.1147005	.1385937	-0.83	0.408	-.3863391	.1569381
age		-.0595721	.0293495	-2.03	0.042	-.1170962	-.002048
agesq		.0007722	.0003094	2.50	0.013	.0001659	.0013786
_Icouple_1		.6878408	.3592632	1.91	0.056	-.0163021	1.391984
_Iactif3_1		-1.404065	.4172683	-3.36	0.001	-2.221896	-.5862345
_Iactif3_2		-.161238	.1879772	-0.86	0.391	-.5296666	.2071906
_Ination2_2		-.20638	.2018316	-1.02	0.307	-.6019626	.1892027
_Ienfant_1		.0244049	.1589847	0.15	0.878	-.2871995	.3360092
_Iscol2_2		.4272254	.2589507	1.65	0.099	-.0803086	.9347595
_Iscol2_3		.1144001	.3296195	0.35	0.729	-.5316423	.7604426
_Iscol2_4		.0816934	.5578927	0.15	0.884	-1.011756	1.175143
_Ireligiou~1		-.1054409	.1556079	-0.68	0.498	-.4104267	.1995449
afv372b		-.0554023	.0405538	-1.37	0.172	-.1348862	.0240816
_cons		10.47282	1.540815	6.80	0.000	7.452875	13.49276
-----+-----							
afv353							
tinstitutifs		.0189535	.0107125	1.77	0.077	-.0020426	.0399497
solidarity		-.0245622	.0124662	-1.97	0.049	-.0489955	-.0001289
polpart		.0461831	.0159966	2.89	0.004	.0148303	.0775358
socculpart		-.0265473	.0299146	-0.89	0.375	-.0851789	.0320843
socrel		.039437	.0269018	1.47	0.143	-.0132895	.0921635
a165		-.2808367	.1398344	-2.01	0.045	-.5549072	-.0067662
_Ia003_2		-.13533	.1356476	-1.00	0.318	-.4011943	.1305344
_Ia003_3		-.1825133	.218095	-0.84	0.403	-.6099716	.2449451

_Ia003_4		-.2465976	.5940341	-0.42	0.678	-1.410883	.9176878
_Isexe_2		-.0134583	.1311531	-0.10	0.918	-.2705137	.243597
age		.0470375	.02452	1.92	0.055	-.0010208	.0950958
agesq		-.0004401	.0002617	-1.68	0.093	-.0009529	.0000728
_Icouple_1		1.225977	.1479002	8.29	0.000	.9360978	1.515856
_Iactif3_1		-.3902328	.3935805	-0.99	0.321	-1.161636	.3811709
_Iactif3_2		.3068009	.16946	1.81	0.070	-.0253347	.6389364
_Ination2_2		-.6084361	.1410898	-4.31	0.000	-.8849669	-.3319052
_Ienfant_1		.1205191	.1498743	0.80	0.421	-.1732292	.4142675
_Iscol2_2		.538814	.2003911	2.69	0.007	.1460547	.9315732
_Iscol2_3		1.085126	.1883395	5.76	0.000	.7159874	1.454265
_Iscol2_4		2.123777	.2036418	10.43	0.000	1.724647	2.522908
_Ireligiou~1		.2829934	.1326354	2.13	0.033	.0230328	.542954
_Iafv370_2		-.0916874	.2024456	-0.45	0.651	-.4884735	.3050987
_Iafv370_3		.0377921	.2080716	0.18	0.856	-.3700208	.445605
_Iafv370_4		-.6933458	.2297748	-3.02	0.003	-1.143696	-.2429955
_Iafv370_5		-.740354	.2453698	-3.02	0.003	-1.22127	-.2594379
_Iafv370_6		-.3907299	.2222875	-1.76	0.079	-.8264054	.0449456
afv372b		.0580557	.0355109	1.63	0.102	-.0115445	.1276558
_cons		5.247227	.9397705	5.58	0.000	3.405311	7.089143

Annex 2: The determinants of subjective well-being measured by a happiness indicator with endogenous absolute income

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P

happy	1057	29	.5437268	0.2267	328.36	0.0000
afv353	1057	27	1.98326	0.3043	462.49	0.0000

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
-----+-----						
happy						
afv353		.0556786	.0694157	0.80	0.422	-.0803738 .1917309
aflu043		.0580959	.020177	2.88	0.004	.0185497 .097642
tinstitutio~s		.0053763	.0030156	1.78	0.075	-.0005342 .0112868

solidarity		-.0022852	.0036603	-0.62	0.532	-.0094593	.004889
polpart		-.0042267	.005359	-0.79	0.430	-.0147302	.0062768
socculpart		.0138084	.0083142	1.66	0.097	-.0024871	.0301038
socrel		.0108525	.0076378	1.42	0.155	-.0041174	.0258224
a165		.0300799	.042807	0.70	0.482	-.0538203	.1139801
_Ia003_2		-.0807493	.0387995	-2.08	0.037	-.156795	-.0047036
_Ia003_3		-.2433686	.0611958	-3.98	0.000	-.3633102	-.1234271
_Ia003_4		-.3363897	.1644022	-2.05	0.041	-.6586121	-.0141673
_Iafv9_2		-.2212044	.0413005	-5.36	0.000	-.3021518	-.140257
_Iafv9_3		-.3663201	.0572468	-6.40	0.000	-.4785217	-.2541185
_Iafv9_4		-.6482241	.1270023	-5.10	0.000	-.897144	-.3993042
_Iafv9_5		-.9832515	.2120979	-4.64	0.000	-1.398956	-.5675472
_Iafv9_8		-.5569235	.5467557	-1.02	0.308	-1.628545	.514698
_Isexe_2		.0785233	.0361747	2.17	0.030	.0076222	.1494243
age		-.0244363	.0076373	-3.20	0.001	-.0394052	-.0094674
agesq		.0002439	.0000805	3.03	0.002	.0000862	.0004017
_Icouple_1		.1537762	.0931963	1.65	0.099	-.0288852	.3364377
_Iactif3_1		-.0693461	.1088492	-0.64	0.524	-.2826866	.1439944
_Iactif3_2		-.0078192	.0491164	-0.16	0.874	-.1040855	.0884471
_Ination2_2		.0912587	.0528711	1.73	0.084	-.0123668	.1948842
_Ienfant_1		.0211619	.0415008	0.51	0.610	-.0601783	.102502
_Iscol2_2		-.0044566	.0677254	-0.07	0.948	-.137196	.1282828
_Iscol2_3		-.1446926	.0859979	-1.68	0.092	-.3132453	.0238601
_Iscol2_4		-.147202	.1457088	-1.01	0.312	-.432786	.138382
_Ireligiou~1		-.0399561	.0406511	-0.98	0.326	-.1196308	.0397186
afv372b		-.0189119	.0104936	-1.80	0.072	-.039479	.0016552
_cons		3.126748	.4045617	7.73	0.000	2.333822	3.919674
-----+-----							
afv353							
tinstitutit~s		.0187006	.0107176	1.74	0.081	-.0023054	.0397066
solidarity		-.0238924	.0124688	-1.92	0.055	-.0483308	.0005459
polpart		.0467095	.0159997	2.92	0.004	.0153507	.0780683
socculpart		-.0264984	.0299292	-0.89	0.376	-.0851585	.0321618
socrel		.038102	.0269015	1.42	0.157	-.014624	.090828
a165		-.2831081	.1399088	-2.02	0.043	-.5573243	-.008892
_Ia003_2		-.1364189	.1357229	-1.01	0.315	-.4024309	.1295932
_Ia003_3		-.1747765	.2182028	-0.80	0.423	-.6024461	.2528931

_Ia003_4		-.4895641	.5730791	-0.85	0.393	-1.612779	.6336504
_Isexe_2		-.019874	.1311764	-0.15	0.880	-.276975	.2372269
age		.0450202	.0245077	1.84	0.066	-.0030139	.0930544
agesq		-.0004205	.0002616	-1.61	0.108	-.0009331	.0000922
_Icouple_1		1.223843	.147982	8.27	0.000	.9338036	1.513882
_Iactif3_1		-.3979267	.3937976	-1.01	0.312	-1.169756	.3739024
_Iactif3_2		.3141199	.1694814	1.85	0.064	-.0180575	.6462973
_Ination2_2		-.6109015	.1411131	-4.33	0.000	-.8874781	-.3343249
_Ienfant_1		.1186023	.1499569	0.79	0.429	-.1753079	.4125124
_Iscol2_2		.540989	.200457	2.70	0.007	.1481006	.9338775
_Iscol2_3		1.085659	.1884383	5.76	0.000	.7163266	1.454991
_Iscol2_4		2.126372	.2037368	10.44	0.000	1.727055	2.525689
_Ireligiou~1		.2862914	.1327073	2.16	0.031	.0261898	.546393
_Iafv370_2		-.00946	.2019743	-0.05	0.963	-.4053224	.3864023
_Iafv370_3		.0433728	.2077753	0.21	0.835	-.3638593	.4506049
_Iafv370_4		-.6792196	.2295946	-2.96	0.003	-1.129217	-.2292225
_Iafv370_5		-.6977029	.2451792	-2.85	0.004	-1.178245	-.2171605
_Iafv370_6		-.3609148	.2220023	-1.63	0.104	-.7960314	.0742018
afv372b		.054346	.0354878	1.53	0.126	-.0152088	.1239008
_cons		5.290009	.9399242	5.63	0.000	3.447791	7.132226

Annex 3: The determinants of subjective well-being measured by a life satisfaction indicator with endogenous absolute income

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
satisfaction	1058	29	1.815846	0.2469	336.07	0.0000
afv353	1058	27	1.981819	0.3039	462.00	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
satisfaction					
afv353	-.0451972	.2321041	-0.19	0.846	-.5001128 .4097184
aflu043	.2949054	.0669434	4.41	0.000	.1636987 .4261121

tinstituti~s		.026591	.0101211	2.63	0.009	.006754	.046428
solidarity		-.0295292	.0123083	-2.40	0.016	-.053653	-.0054054
polpart		-.0065768	.0177334	-0.37	0.711	-.0413336	.02818
socculpart		.0206822	.0278203	0.74	0.457	-.0338446	.0752091
socrel		.0489878	.0256984	1.91	0.057	-.0013801	.0993557
a165		-.0861147	.1436554	-0.60	0.549	-.3676741	.1954447
_Ia003_2		-.2134558	.1294048	-1.65	0.099	-.4670846	.0401729
_Ia003_3		-.4699396	.2034752	-2.31	0.021	-.8687436	-.0711356
_Ia003_4		-.4064437	.5552385	-0.73	0.464	-1.494691	.6818037
_Iafv9_2		-.5615813	.1369515	-4.10	0.000	-.8300014	-.2931613
_Iafv9_3		-1.137116	.1901295	-5.98	0.000	-1.509763	-.7644686
_Iafv9_4		-1.163474	.4222201	-2.76	0.006	-1.99101	-.3359377
_Iafv9_5		-3.260718	.6927346	-4.71	0.000	-4.618453	-1.902984
_Iafv9_8		.1678344	1.816064	0.09	0.926	-3.391585	3.727254
_Isexe_2		-.1970555	.121061	-1.63	0.104	-.4343306	.0402197
age		-.0328401	.0256961	-1.28	0.201	-.0832035	.0175234
agesq		.0004949	.0002706	1.83	0.067	-.0000355	.0010254
_Icouple_1		.5456435	.3124013	1.75	0.081	-.0666519	1.157939
_Iactif3_1		-1.340488	.364034	-3.68	0.000	-2.053982	-.6269947
_Iactif3_2		-.1692394	.1640596	-1.03	0.302	-.4907903	.1523115
_Ination2_2		-.3254573	.1777272	-1.83	0.067	-.6737962	.0228816
_Ienfant_1		.0047424	.1388049	0.03	0.973	-.2673103	.276795
_Iscol2_2		.4219711	.2258363	1.87	0.062	-.0206599	.8646021
_Iscol2_3		.2358848	.2864894	0.82	0.410	-.3256241	.7973937
_Iscol2_4		.2289839	.4863842	0.47	0.638	-.7243116	1.182279
_Ireligiou~1		-.0630957	.1355611	-0.47	0.642	-.3287906	.2025992
afv372b		-.0363551	.0352634	-1.03	0.303	-.10547	.0327599
_cons		7.335203	1.343348	5.46	0.000	4.702289	9.968117
-----+-----							
afv353							
tinstituti~s		.0204007	.0106416	1.92	0.055	-.0004564	.0412578
solidarity		-.0252859	.0124352	-2.03	0.042	-.0496585	-.0009133
polpart		.0453511	.0159665	2.84	0.005	.0140573	.0766449
socculpart		-.0271335	.0299044	-0.91	0.364	-.085745	.0314781
socrel		.0409332	.0268661	1.52	0.128	-.0117233	.0935898
a165		-.2872367	.1396785	-2.06	0.040	-.5610016	-.0134717
_Ia003_2		-.1293331	.1354819	-0.95	0.340	-.3948727	.1362064

_Ia003_3		-.1651985	.2172954	-0.76	0.447	-.5910896	.2606926
_Ia003_4		-.2315626	.5938113	-0.39	0.697	-1.395411	.9322861
_Isexe_2		-.0166897	.1310898	-0.13	0.899	-.273621	.2402415
age		.0472662	.0245099	1.93	0.054	-.0007722	.0953047
agesq		-.0004424	.0002614	-1.69	0.091	-.0009547	.0000699
_Icouple_1		1.229159	.147578	8.33	0.000	.939911	1.518406
_Iactif3_1		-.3772577	.3933005	-0.96	0.337	-1.148113	.3935972
_Iactif3_2		.3143433	.1690064	1.86	0.063	-.0169032	.6455897
_Ination2_2		-.6201741	.1403912	-4.42	0.000	-.8953357	-.3450125
_Ienfant_1		.1200384	.1498262	0.80	0.423	-.1736156	.4136923
_Iscol2_2		.5401712	.2002986	2.70	0.007	.1475932	.9327493
_Iscol2_3		1.083153	.1878729	5.77	0.000	.7149291	1.451377
_Iscol2_4		2.120878	.2035371	10.42	0.000	1.721953	2.519804
_Ireligiou~1		.2784265	.1325356	2.10	0.036	.0186616	.5381915
_Iafv370_2		-.1162811	.2007029	-0.58	0.562	-.5096515	.2770893
_Iafv370_3		.0291653	.2064078	0.14	0.888	-.3753864	.4337171
_Iafv370_4		-.6993757	.2287818	-3.06	0.002	-1.14778	-.2509717
_Iafv370_5		-.752454	.2440949	-3.08	0.002	-1.230871	-.2740367
_Iafv370_6		-.3868543	.2205294	-1.75	0.079	-.8190841	.0453754
afv372b		.0569565	.0354835	1.61	0.108	-.01259	.1265029
_cons		5.231143	.9391597	5.57	0.000	3.390424	7.071862



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