

Social Cohesion: Measurement Based on the Data from European Value Study

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Abstract

The main aim of the present study is to review the latest research conducted on the concept of social cohesion, to link and to upgrade the existing conceptualizations of social cohesion in a systematic manner and to measure social cohesion using the micro data from the 1999 European Values Study. That 1999 study contains a great number of subjective and objective items that measure attitudes toward and behaviour regarding social relations, participation, and trust at many levels of social reality as well as in many spheres/domains of everyday life. This paper builds on the research of Berger-Schmitt (1999), Jenson (1998), Chan et al. (2006) and mainly Bernard (1999). Empirical analyses/construction of social cohesion indicators is realized by employing multidimensional scaling and confirmatory factor analysis.

Keywords: [social cohesion, multidimensional scaling, confirmatory factor analysis, EVS]

1. Introduction

There have been many attempts to conceptualize and measure social cohesion. Different definitions and approaches have yielded different types of indicators and empirical results. However, most of these attempts will only partially cover the complex, multilevel and multidimensional nature of the concept.

The main aim of the present study is to review the latest research conducted on the concept of social cohesion and to construct indicators of social cohesion based on micro-data from one country (Luxembourg). Since the measurement of social cohesion describes the nature of a certain group or society, the indicators of social cohesion generated in this study have great potential to be used in comparative research.

The paper builds on the research of Jenson (1998), Berger-Schmitt (1999), Chan et al. (2006) and mainly Bernard (1999). In concrete terms, we aim to test the applicability of Bernard's integrated conceptual scheme of social cohesion, which is based, firstly, on the activity spheres (economic, political and socio-cultural); and secondly, on the formal -- subjective/attitudinal (how people perceive them) and substantial/behavioural (how people act) relations. These two theoretical facets lead to the conceptualisation of the following dimensions: affiliation/isolation, insertion/exclusion, participation/passivity, acceptance/rejection, legitimacy/illegitimacy, equality/inequality. Empirical analyses, in which we approach social

cohesion as a quasi-normative, static, societal, relational, multidimensional concept, where both attitudinal and behavioural indices are taken into account, are based on the European Value Study (further only EVS) data from Luxembourg from 1999. The main statistical techniques used in this paper are multidimensional scaling and confirmatory factor analysis.

The main contributions of this paper are based on a clearly defined multidimensional theoretical concept of social cohesion and on representative individual data containing a wide range of micro items covering most of the dimensions pointed out in the theory. As most of the measures of the social cohesion proposed up to now rely mainly on objective macro indicators, our study proposes an alternative and innovative approach to measuring the phenomenon.

2. Social cohesion – definition

Currently, it appears to be difficult to find a generally accepted definition of social cohesion. And without such a definition, the already existing measures to cover it remain very numerous. Trying to clarify the notion of social cohesion, Chan et al. (2006) observes that two approaches can be distinguished in the literature. The first is an academic approach, and he distinguishes between that of sociologists and that of social psychologists. The sociologists (Berger, 1998; Gough and Olofsson, 1999) put their attention on the questions of social integration, stability, and disintegration. They did not necessarily try to define social cohesion, with the exception of Lockwood (1999), who considered it as the other extreme of social dissolution. The social psychologists contribute to defining the concept of social cohesion and to creating a framework for measuring the cohesion of groups.

The second approach is a political one and was illustrated by the examples of Canada and Europe. Centered first on multiculturalism, which Canada tried to promote since the nineties and which Europe had to manage following its enlargement, the notion of social cohesion glided towards economic and social dimensions. These dimensions were broadly adopted by the international institutions, which saw in social cohesion factors of economic development (Osberg, Dayton, Johnson, 2003). Reviewing the existing definitions, they distinguish two types, and find them both insufficient. The first is an approach that mixes the content of the definition and the conditions of realization of social cohesion (they quote Duhaime et al., 2004; Berger Schmitt, 2000) and that reflects the political orientation of the discourse about social cohesion. The second is a pluralistic approach that is not defined precisely but depends on social questions (Beauvais and Jenson, 2002; Jenson, 1998; Bernard, 1999).

In this context the approach of Bernard (1999), based on Jenson's work (1998), seems to us to be the best for integrating the different dimensions of social cohesion. Undoubtedly, Bernard best comprehends the inherent difficulty of this notion, which he considers a *quasi-concept*, that is, a *hybrid* mental construction proposed by the political game and at the same time based on an analysis of data of the situation; such a construction must remain quite undetermined in order to be adaptable to the necessities of political action. Bernard considers social cohesion as a dialectic balance between three values: freedom, equality and solidarity. These three elements refer to each other and at the same time stand in contradiction. So the idea of balance between the three is essential to reach social cohesion. The role of political institutions is to manage social conflicts in founding their actions on these three values.

Jenson (1998) was the first to elaborate on five dimensions measuring social cohesion: 1. Affiliation/isolation; 2. Insertion/exclusion; 3. Participation/passivity; 4. Acceptance/rejection; 5.

Legitimacy/illegitimacy. Bernard (1999) constructed an integrated scheme based, on the one hand, on the activity spheres (economic, political and socio-cultural) and, on the other hand, on the formal/attitudinal respectively substantial/behavioural character of the dimensions. He completes the proposal of Jenson by introducing the essential dimension of equality/inequality in regard to social justice and equity in the economic sphere. Bernard's conceptualization of social cohesion will be used to theoretically frame our empirical analysis and our construction for measuring social cohesion.

Table 1: Bernard's integrated conceptual scheme of social cohesion.

Sphere	Nature of relations	
	Formal / attitudinal	Substantial / behavioural
Economic	Case A Insertion/exclusion	Case D: Equality/inequality
Political	Case B: Legitimacy/illegitimacy	Case E: Participation/passivity
Socio-cultural	Case C: Acceptance/rejection	Case F: Affiliation/isolation

3. Data

As mentioned earlier, empirical analyses are based on the 1999 European Values Study¹ from Luxembourg. A representative sample of the Luxembourgish adult population (aged 18 years and more) consisted of 1211 individuals. The data for confirmatory factor analysis was weighted by usual population weights. The main reason for choosing this database is that it contains a great number of subjective and objective items that measure attitudes toward and behaviour regarding social relations, participation, and trust at many levels of social reality as well as in many spheres/domains of everyday life, which more or less correspond to dimensions of social cohesion covered by the literature. The EVS data are purely micro-level data (data collected at the individual level) that focus mainly on attitudes and behaviour of individuals. How can the individual nature of the data be compatible with the fact that social cohesion is defined as an attribute of a group or society, not of an individual (Jenson, 1998; Berger-Schmitt, 2000; Chan et al., 2006; Bernard, 1999; Rajulton et al.; 2007)? The answer to this question is as follows. Even if we decide to use individual micro-data to measure social cohesion, our ambition is to describe individual behaviour regarding and attitudes toward supra-individual phenomena such as social relations and interactions, involvement/participation and trust in organizations and institutions.

¹ The European Values Study is a large-scale, cross-national, and longitudinal survey research program on basic human values. The first wave of the survey was launched in 1981 in ten European countries. To explore the dynamics of values changes, a second wave of surveys was launched in 1990 in all European countries, including Switzerland, Austria and countries in Central and Eastern Europe, as well as the US and Canada. About ten years later (1999/2000), the third EVS wave was launched and fieldwork was conducted in almost all European countries. The fourth wave has been launched in 2008. (<http://www.europeanvalues.nl/>, 2.11.2008)

4. Operationalization

Given the above conceptualization and available data set, we proceed with operationalization of the concept of social cohesion in several steps.

In a first step, we selected which questions/items in the EVS data set can be used to measure dimensions of social cohesion. At the end of this exercise we have a large number of variables (dichotomous or polychotomous items of nominal or ordinal response format) which cover more or less the dimensions of social cohesion suggested by the theory. Unfortunately, some of the six hypothesized dimensions of Paul Bernard are very well provided with data, but others are less represented, and for one dimension (economic-substantial relations) no item was found.

In a second step a pre-treatment of the retained items was done. Missing values were replaced by mode or mean values or other plausible values estimated with Multiple Correspondance Analysis. If necessary the coding scheme of the variables was reversed.

In a third step, 18 indicators were constructed. An indicator is an intermediate score (parcel) having the following proprieties: 1) The variables must belong to the same theoretical case of Bernard's conceptual scheme; 2) must form a meaningful dimension in a preliminary principal component analysis (with varimax rotation); and 3) must have sufficient internal consistency, estimated by the alpha coefficient of Cronbach.

A list of the 18 indicators was placed within the Bernard's integrated conceptual scheme (see the table below).

Table 2: Statistical characteristics of 18 social cohesion indicators and facets of Bernard's theory.

Indicator	items	n	α	mean	sd	Skew (se= 0.07)	Kurt (se= 0.14)
Case A : Economic sphere – Formal relations Dimension : Insertion/Exclusion							
IN01 <i>income insertion</i>	v98 employers should give priority to Luxembourgish; v99 men have more right to a job than women; o5 residents have more right to a job than frontier worker; v258 let anyone come to work.	4	.57	8.490	2.154	.194	-.785
Case B : Political sphere – Formal relation Dimension : Legitimacy/Illegitimacy							
IN02 <i>Confidence in national distributive systems</i>	v202 educational system; v208 Social security system; v211 Health care system; v212 The justice system	4	.69	13.058	2.708	-.135	.601
IN03 <i>Confidence in national organizations</i>	v203 Press; v204 Trade unions; v205 Police; v206 Parliament; v207 Civil service	5	.77	4.965	1.537	-.109	-.511
IN04 <i>Confidence in authority institutions</i>	v200 Church; v201 Armed forces	2	.54	13.450	2.817	-.024	-.100
IN05 <i>Political adherence</i>	q58p Confidence in political parties; o17 Interest in politics; v213 Satisfy the way democracy is developing; v214 Quality of the political system governing the country	4	.51	5.215	1.174	-1.075	-.552
IN06 <i>Intended voting participation</i>	s25a communal elections; s25b national elections; s25c European elections	3	.88	8.563	2.591	-.106	-.039
Case C : Cultural sphere – Formal relation Dimension : Acceptance/Rejection							
IN07 <i>Proximal solidarity</i>	v267 Concerned people in your	3	.85	9.160	1.409	-2.202	5.523

	neighbourhood; v268 Concerned people in your region; v269 Concerned fellow countrymen						
IN08 Vulnerable people solidarity	v272 Concerned elderly people in your country; v273 Concerned unemployed people in your country; v274 Concerned immigrants in your country; v275 Concerned sick and disabled people in your country; q80e Concerned refugees in your country	5	.87	17.392	4.000	-.146	-.032
IN09 Family solidarity	v266 Concerned immediate family; v276 Prepared to help immediate family	2	.69	5.885	1.633	-.046	-.689
IN10 Intention of solidarity	v277 Prepared to help people in your neighbourhood; v278 Prepared to help elderly people in your country; v279 Prepared to help immigrants in your country; v280 Prepared to help sick and disabled people; q81f Prepared to help refugees in your country	5	.86	2.525	0.883	1.553	1.475
Case E : Political sphere –substantial relation Dimension : Participation/Passivity							
IN11 Participation in legal political activities	V179 signing a petition; v180 joining in boycotts; v181 attending lawful demonstrations	3	.68	0.368	0.814	3.042	12.211
IN12 Participation in illegal political activities	v182 joining unofficial strikes; v183 occupying buildings or factories	2	.65	0.311	0.704	2.777	9.691
IN13 Political interest	v7 discuss political matters; v263 following politics in the mass media	2	.57	0.489	0.912	2.269	6.043
Case F : Cultural sphere- substantial relation Dimension : Belonging/Isolation							
IN14 Involvement in social activities/associations	v12 member of social welfare services; v17 member local community actions ; q5ph member associations for integration of immigrants ; v30 unpaid social welfare services ; v35 unpaid local community actions ; q5pf unpaid associations for integration of immigrants	6	.59	7.915	2.195	-.092	-.749
IN15 Involvement in political activities/ associations	v15 member of trade unions; v16 member of political parties or groups; v20 member of professional associations; v33 unpaid trade unions; v34 unpaid political parties or groups; v38 unpaid professional associations	6	.50	5.827	1.903	.167	-.900
IN16 Involvement in cultural activities/associations	v13 member of religious or church organisations; v14 member of cultural associations or activities; v23 member of women’s group; v31 unpaid religious or church organisations; v32 unpaid cultural associations or activities; v41 unpaid member women’s group	6	.57	11.276	2.102	-.174	.597
IN17 Involvement in youth and leisure activities/associations	v21 member of youth work associations; v22 member of sports or recreation associations; v39 unpaid youth work associations; v40 unpaid sports or recreation associations	4	.48	13.058	2.708	-.135	.601
IN18 Intensity of social relations	v48 spend time with friends; v49 spend time with colleagues outside the workplace; v51 spend time with people in clubs and voluntary associations	3	.46	4.965	1.537	-.109	-.511

sd=standard deviation; α =coefficient alpha of Cronbach; skew=skewness; kurt=kurtosis; se=standard error.

4. Analyses

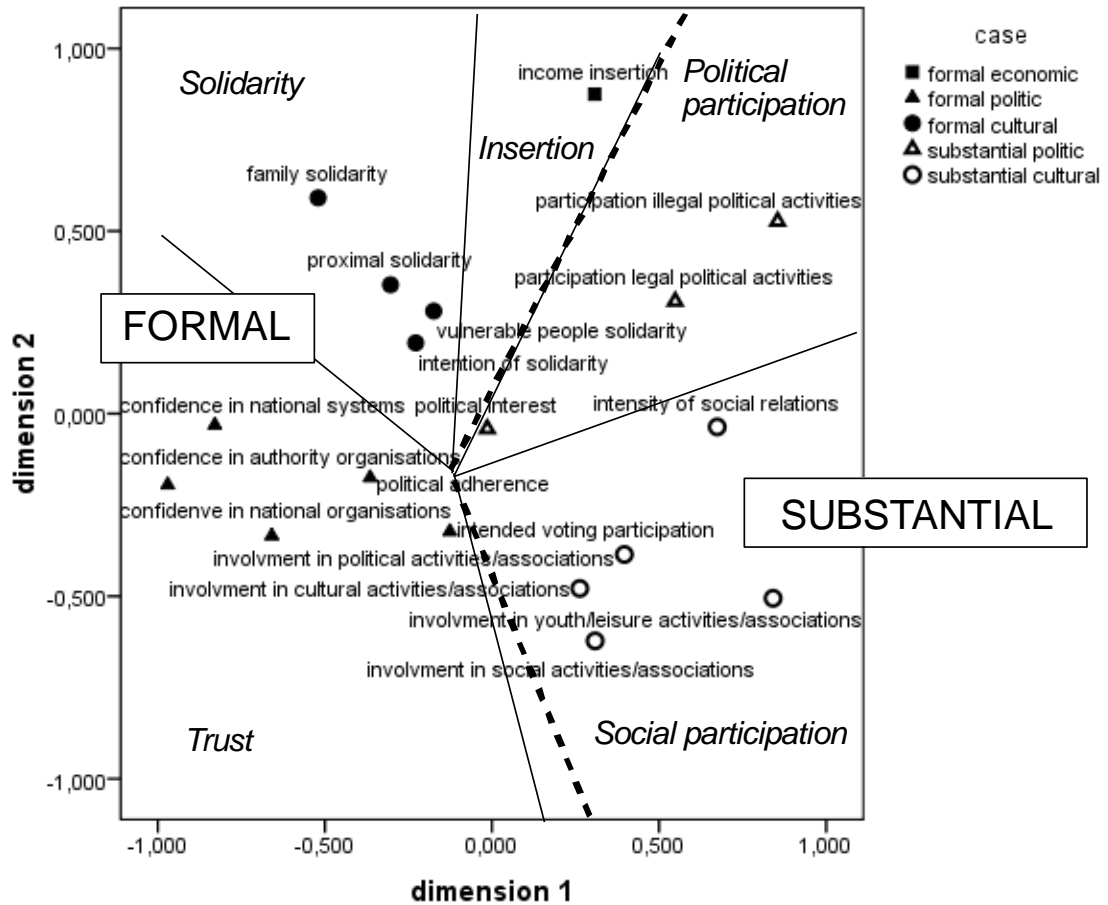
The theoretical constructs were validated with two measurement models: multidimensional scaling (MDS) and confirmatory factor analysis (CFA - LISREL). We consider that the theory of Paul Bernard is validated if the MDS results and the measurement by confirmatory factor analysis represent all or most of the features of Bernard's integrated conceptual scheme. MDS is less restrictive than CFA because only ordinal relationships between observed dissimilarities and obtained distances between the indicators are considered, contrary to CFA where all relations are linear. The interpretation of the MDS solution is supported by the regional and geometrical localisations of the indicators in an orthogonal space. The interpretation of CFA relies only on the factors and the results can measure directly the constructs of the theory.

4.1. Multidimensional scaling

Multidimensional scaling was applied on the dissimilarities matrix between the 18 indicators. The squared standardised Euclidian distance of the 18 indicators is chosen as dissimilarity coefficient. The representation in a two-dimensional space is sufficient: The stress formula 1 equals 0.15 and the Tucker's coefficient of congruence = 0.99.

Interpretation of the results (figure 1) leads to a fair corroboration of Paul Bernard's theory. 1) The formal and substantial relations indicators are clearly localisable in the MDS two-dimensional space. The dashed lines will separate, on the left hand side, all the indicators of formal/attitudinal nature, and on the right hand side, all the indicators of behavioural substantial nature. 2) The five cases of Bernard's conceptual scheme offer a well known *radex* structure. Each of the indicators for a given theoretical case is clearly identifiable and isolated in a region whose borders join together in the centre of the MDS figure. Thus regions of political participation, social participation, trust, solidarity, and insertion measure the hypothetical constructs of Bernard. The equality/inequality dimension is not represented due to the absence of relevant information in the EVS questionnaire. The representation of the insertion/exclusion dimension is minimal, because the construct is covered by only one indicator.

Figure 1: Multidimensional representation of the 18 social cohesion indicators.



Stress (formula 1) = 0.15
 Tucker's coefficient = 0.99

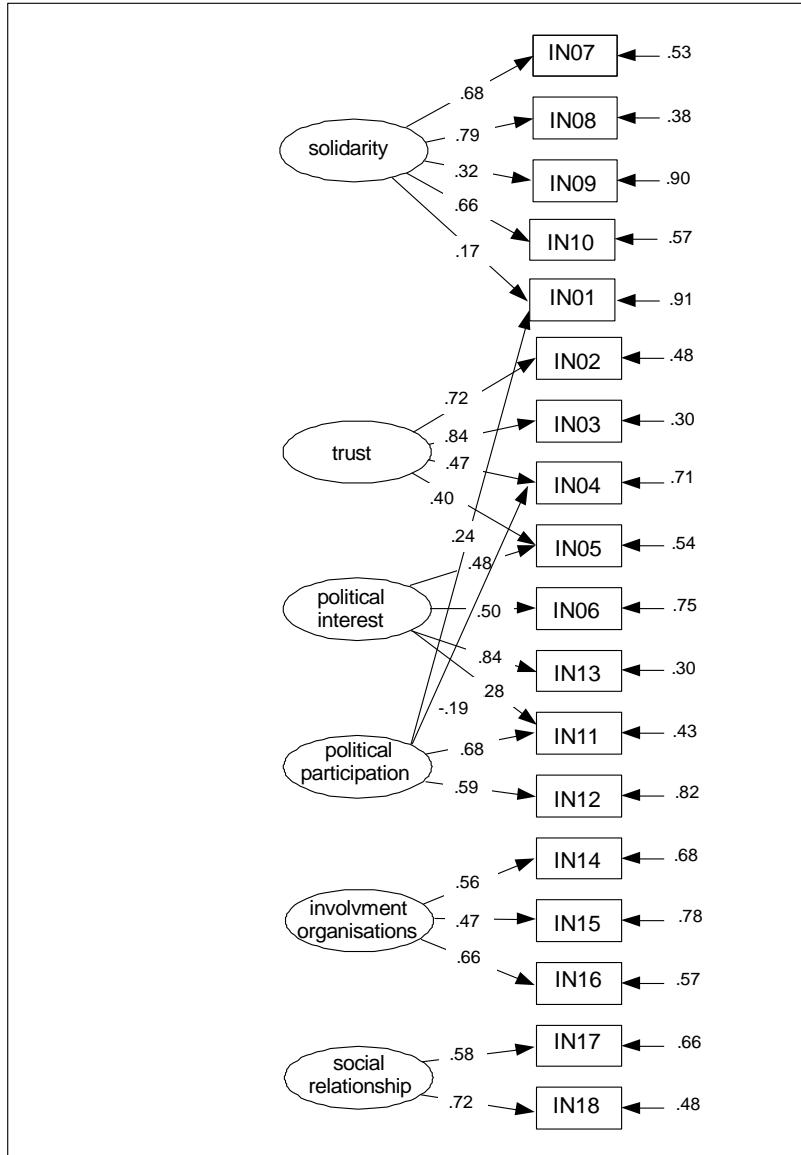
4.2. Confirmatory factor analyses

In this part of our analysis we employ confirmatory factor analysis in order to specify fitting models that would allow us to measure social cohesion and to create factor scores.

The variance-covariance matrix of the weighted data file constitutes the observed data treated with maximum likelihood estimators. Exact and close fit indexes are used in order to assess global adequacy of the models. Four models are tested and meet the requirements of close fit coefficients (RMSEA and CFI), but not those of exact fit of chi square coefficients. It is hard to fulfill the requirements of exact fit conditions because the significance depends on the number of observations. It is also difficult, in the modeling procedure, to make a sensible interpretation of the many potential correlated errors.

The four models are represented by figures 2 to 5. Only user-friendly standardized coefficients are presented in the figures. The retained coefficients are all significant at the $p=0.05$ level. Global exact and close fit coefficients are presented next to each figure.

Figure 2: Model 1: six oblique latent factors.

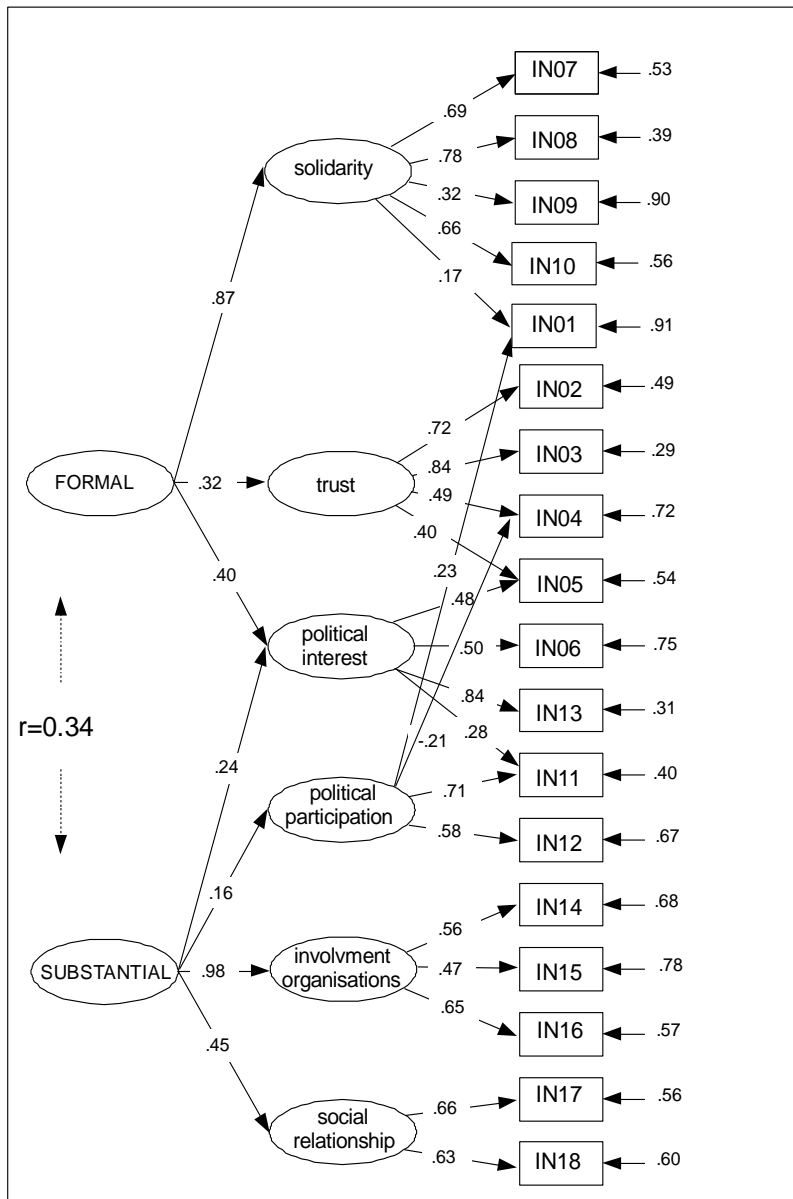


Chi²=314.69 (df=116; p<0.001)
 RMSEA=0.038 (p<0.05=1.0); CFI=0.97.

The first/base model (figure 2) is a confirmatory oblique first order factor analysis. It reproduces partly the structure of four cases of Bernard's integrated conceptual scheme: solidarity (case C acceptance vs. rejection); trust (case B legitimacy vs. illegitimacy); involvement in organizations and social relationship (case F: belonging vs. isolation); political interest and political participation (cases B and E including both subjective and behavioral relations). Cases A and D are not considered. Some factors belong exclusively to one sole case: B or C. Case D is measured by two factors. Political interest and political participation will overlap the subjective and behavioral relations. This modeling is congruent with the proximity of the corresponding indicators in MDS space and is induced from a preliminary exploratory factor

analysis (not mentioned here). Indicator IN01 (income insertion) is related to solidarity and social participation. But the weak explained variance of the indicator, by the six first order factors, suggest that if other indicators of the construct could be operationalized a new independent factor could have some chance to emerge. Omitting this indicator in the analysis would not dramatically change the obtained structure.

Figure 3: Model 2: Hierarchical representation with two correlated second-order factors.

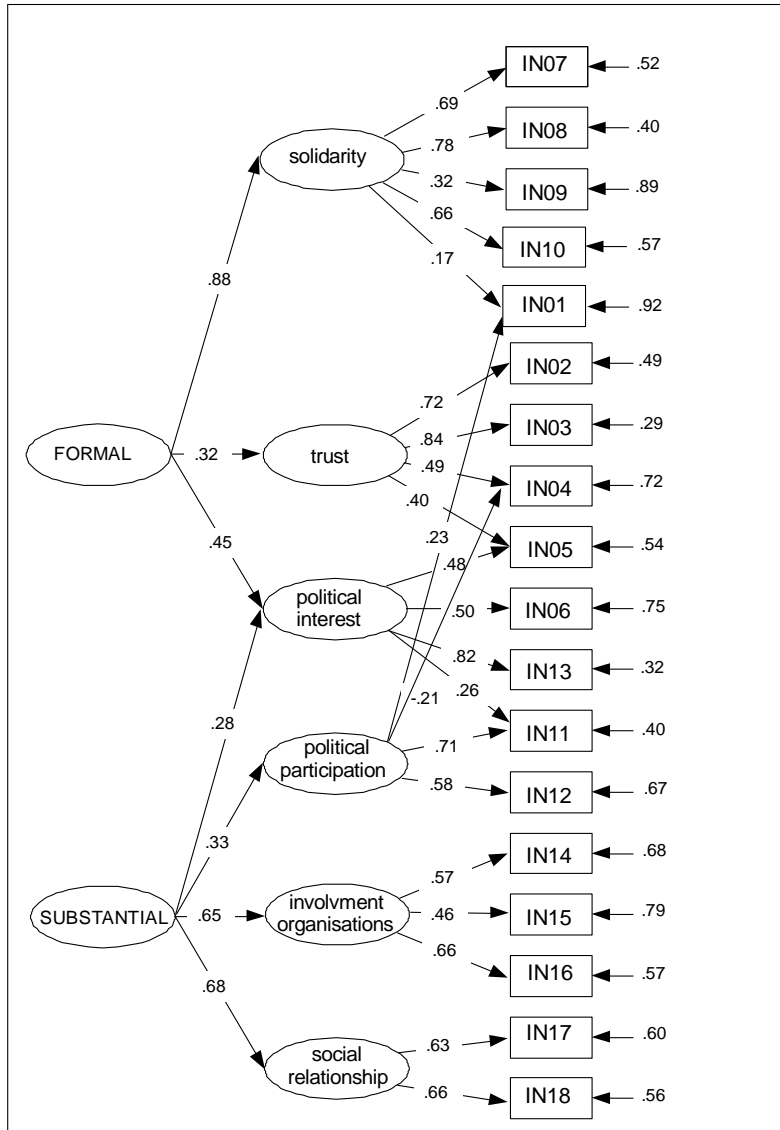


Chi²=378.02 (df=123; p<0.001)
 RMSEA=0.041 (p<0.05=1.0); CFI=0.96.

With the second model (figure 3) we enrich the first base model by introducing second-order correlated factors. We thus assume a hierarchical correlated factor structure. Formal and

substantial relations are second-order factors. The existence of these second-order factors is hypothesized by Bernard's integrated conceptual scheme and is validated by our analysis.

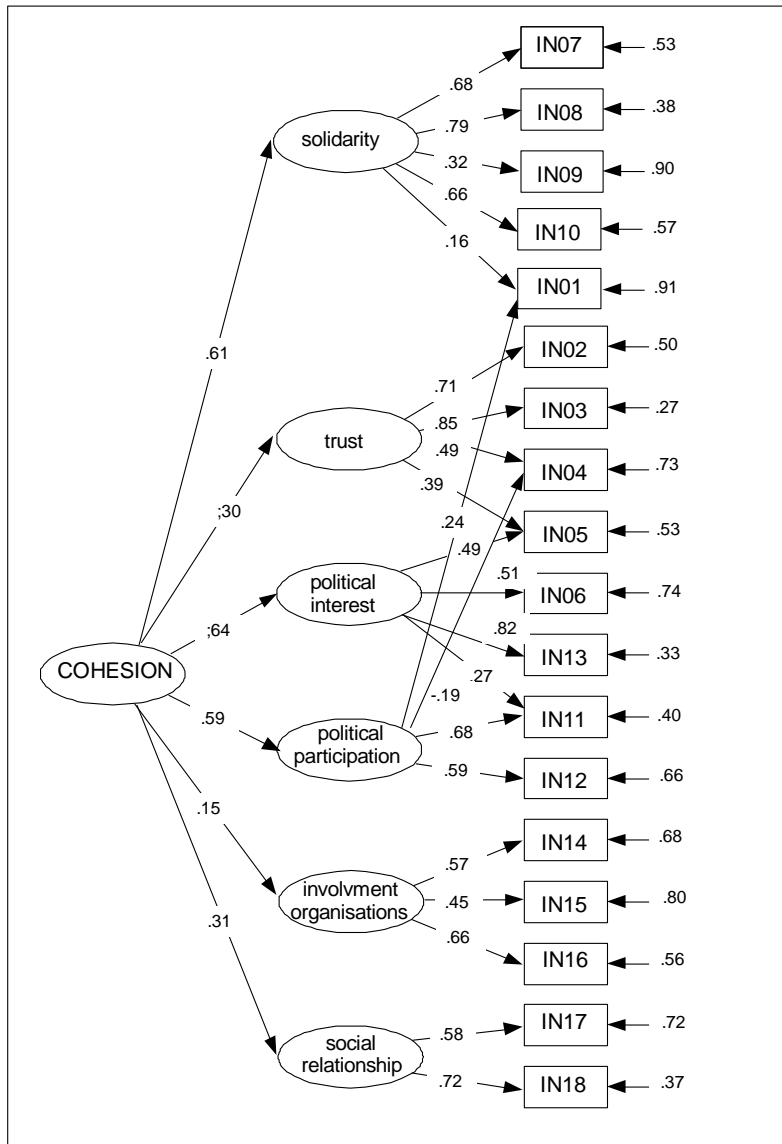
Figure 4: Model 3: Hierarchical representation with two orthogonal second-order factors.



Chi²=419.59 (df=124; p<0.001)
 RMSEA=0.044 (p<0.05=0.98); CFI=0.95.

The third model (figure 4) is a loose modification of the second one. We assume the existence of second-order factors, but we postulate that these factors are orthogonal or independent. This modelling has practically the same close fit as the second model. The results for both reveal that the formal latent factor depends mainly on solidarity, political interest, and finally on trust. The latent factor measuring substantial relations is associated with involvement in organizations, social relations, political participation and political interest.

Figure 5: Model 5 Hierarchical representation with one second-order factor.



Chi²=444.26 (df=125; p<0.001)
 RMSEA=0.046 (p<0.05=0.92); CFI=0.94.

In the last model presented (figure 5), we assume that the first-order factors can be explained by one general second-order factor, i.e. social cohesion. This general factor is measured mainly by solidarity, interest in politics, and participation in politics; less by trust and social relations; and least by participation in organizations.

Based on the above analyses we are able to calculate factor scores for each of the models, which can be used in different research projects, either as dependent or independent variables or as objects of comparison among groups.

5. Conclusions

The aim of the study was to create a measurement of social cohesion based on Bernard's definition of social cohesion and micro-data from the EVS from Luxembourg. On the basis of this theoretical framework and available data we created 18 operational indicators. The indicators cover almost all dimensions of Bernard's integral theoretical scheme. The only dimension that we were not able to cover was the substantial dimension of economic sphere (equality/inequality), because the data did not contain any appropriate items. This limitation should be kept in mind while interpreting our findings.

The results of multidimensional scaling reveal that Bernard's conceptualisation of social cohesion can be confirmed.

In a first step, the coordinates of the indicators in a two-dimensional MDS space correspond very well, if not perfectly, to the constructs of Bernard (table 1).

In a second step, we made use of confirmatory factor analysis. In total we manage to estimate four distinctive models: base model, model of the second order with correlated and noncorrelated substantial and formal factors, and finally, a model with a general second-order factor. These four models allow us to calculate different factor scores of social cohesion, which can be used to answer different research questions and compare different population subgroups.

Table 3: Verification of the Bernard's conceptual scheme using micro-data indicators from EVS.

Sphere	Nature of relations	
	Formal / attitudinal	Substantial / behavioural
Economic	Case A	Case D:
Political	Case B: Solidarity	Case E:
	Interest and participation in politics	
Socio-cultural	Case C: Solidarity	Case F: Involvement in organizations Social relations

All these above proposed measurements of social cohesion are issued from the data of one country collected at one point in time. It is necessary that in the future the above described measurement of social cohesion could be replicated on the 2008 EVS data set and thus cross-validated across time. Cross-country validation of the measures of social cohesion also has yet to be performed.

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