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MEASURING ACTIVE CITIZENSHIP IN EUROPE

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Executive summary

The current European climate and the revitalised Lisbon strategy have put social cohesion at the heart of the European policy agenda. Active Citizenship is an essential element of the strategy, putting the spotlight on values, representative democracy and civil society. The question is how a concept such as active citizenship can be measured.

This report presents the definition and framework for developing composite indicators of active citizenship, the process of building a composite indicator and the results obtained from the indicators in terms of European cross-country comparisons. The framework and indicators used in this report are based on recommendations emerging from the research project on "Active Citizenship for Democracy" coordinated by the Centre for Research on Lifelong Learning (CRELL) of the European Commission. CRELL was created in collaboration between the European Commission's Directorate General for Education and Culture and the Directorate General Joint Research Centre in order to support the monitoring of the Lisbon process in the field of education. The project on active citizenship has been developed in cooperation with the Council of Europe's Directorate of Education and is supported by a research network, "Active Citizenship for Democracy," which is comprised of key experts from across Europe from the fields of social and political science and education.

The Active Citizenship Composite Indicator (ACCI) covers 19 European countries and is based on a list of 63 basic indicators for which the data has been principally drawn from the European Social Survey of 2002. As shown in the picture, the ACCI shows a heterogeneous Europe where Nordic countries lead and southern European countries display positive performances in Values and Political Life but lag behind in Civil Society and Community Life dimensions.

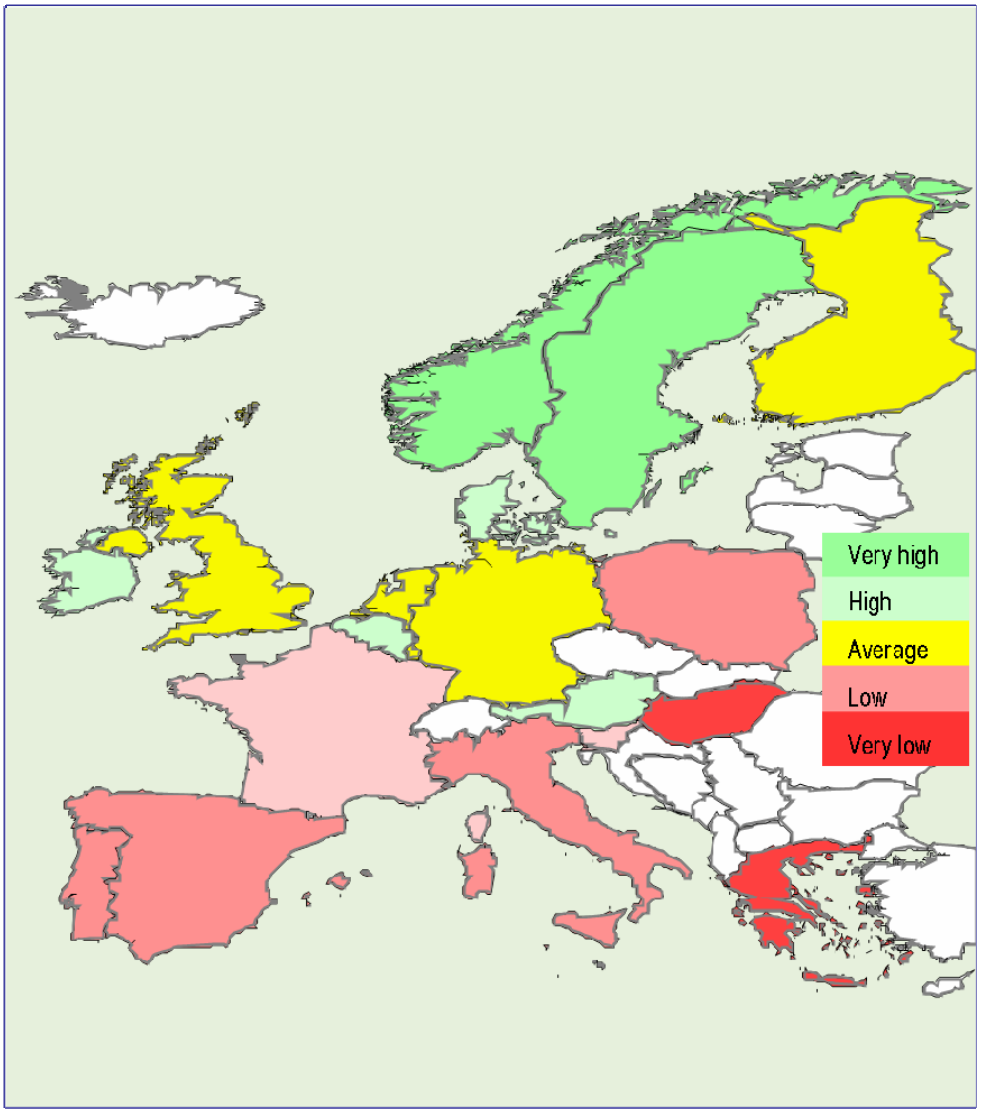

Figure 1: The Active Citizenship Composite Indicator

Among the Nordic countries the exception seems to be Finland, which ranks in the middle of the table in all dimensions except Values. Among western European countries high scores are recorded by Austria and the Benelux countries although with different profiles: whereas the Netherlands and Luxembourg have consistent performances in all dimensions considered, Belgium compensates for low scores in the dimension of Values with an outstanding performance in Political Life. The complex reality of eastern European countries is reflected in the index, in which Poland is top performer in only the Values domain and Hungary lags behind in all four dimensions analysed. Nevertheless, Hungary has encouragingly high scores in *national voting* and *non-organised help*.

The robustness of the Active Citizenship Composite Indicator was tested in different ways by using Factor Analyses on the available data from European Social Survey and by performing sensitivity analysis on a plurality of scenarios (all with their implications in terms of standardisation, weighting schema and alternative ways of composing the composite indicator). The results of the robustness analysis indicate that the structure of the data corresponds to the theoretical structure.

The multivariate analysis confirms the robustness of the index and the invariance of the rankings to changes in normalisation methods and in the weighting of individual indicators, sub-dimensions and dimensions. The use of non-compensatory aggregation methods further reinforces this message, given that rankings are almost not dependent upon the aggregation method used. In the worst cases, in fact, the shift in rank is of two positions, mostly due to the aggregation method (non-linear/non-compensatory multi-criteria). This modest sensitivity is observed for Ireland, Luxembourg, Germany, United Kingdom, Poland and Hungary. The only notable exception concerns the Civil Society dimension, in which Finland would improve its rank by five positions when using a *Benefit of the Doubt* weighting approach, whilst the Netherlands would lower its rank by five positions under the non-compensatory multi-criteria aggregation.

In order better to understand the phenomenon of active citizenship the relationship between the Active Citizenship Composite Indicator and other social and economic indicators was explored. We found a high negative correlation with the Corruption Perceptions index, and a high positive correlation with GDP per capita and the Human Development Index. A modest positive correlation is also found with the Social Cohesion Index (SCI) and the Global Gender Gap Index. The relationship with the ACCI and the five benchmarks on education and training (plus the investment in education) decided by the Council (Education) 2003 is not conclusive. Rather it gestures towards the need for further research on the topic.

After an in-depth presentation of the above-mentioned results, the report concludes by highlighting the possibilities for further research in the field, especially with respect to the relationship between Active Citizenship and Education.

1. Introduction: defining active citizenship

The study of active citizenship has evolved as a specific strand within research on social capital. Robert Putnam states that "active citizenship" is strongly related to "civic engagement" and that it plays a crucial role in building social capital. He considers that the pursuit of shared objectives provides a way for people to experience "reciprocity" and thus helps to create webs of networks underpinned by shared values. The resulting high levels of social trust foster further cooperation between people and reduce the chances of anti-social conduct (Putnam 2000).

This approach shows how the idea of active citizenship is an aspect of the concept of "social capital," which is generally used to refer to all the resources that people derive from their relationships with others. Specifically, *social capital* has been defined as "the institutions, relationships, attitudes and values that govern interactions among people and contribute to economic and social development" (Grootaert and Van Bastelaer, 2001).

Such a definition describes a multi-faceted space structured around two main axes, i.e. the *forms* of capital and their *scope*.

With regard to its forms, capital can be split into:

- "Structural social capital" (relatively objective and externally observable social structures such as networks, associations, and institutions, and the rules and procedures they embody. As reported in Portes (1998), both Coleman and Putnam insist on the role of formalised structures in the production of social capital)
- "Cognitive social capital" (subjective and intangible elements such as attitudes, norms of behaviours, values, reciprocity and trust). This approach insists on the individual aspects of social capital which are the object of the studies of Bourdieu (who looks at the advantages to possessors of social capital and the "*deliberate construction of sociability for the purpose of creating this resource*" (Bordieu, 1986, cited in Portes, 1998)) and Coleman (1988).

These forms of social capital are mutually reinforcing but can exist independently of each other.

With respect to the scope of capital, or breadth of the unit of observation, we could distinguish three levels of action:

- Micro-level (horizontal networks of households, individual households and the associated norms and values that underlie these networks, typically in the case of choral groups in Italy as described in Putnam, 1993)
- Meso-level (horizontal and vertical relations among groups – see for example the Andean poor people's organisations described by Bebbington and Carroll, 2000)
- Macro-level (the institutional and political environment which serves as a backdrop for all economic and social activity, cf. North, 2000)

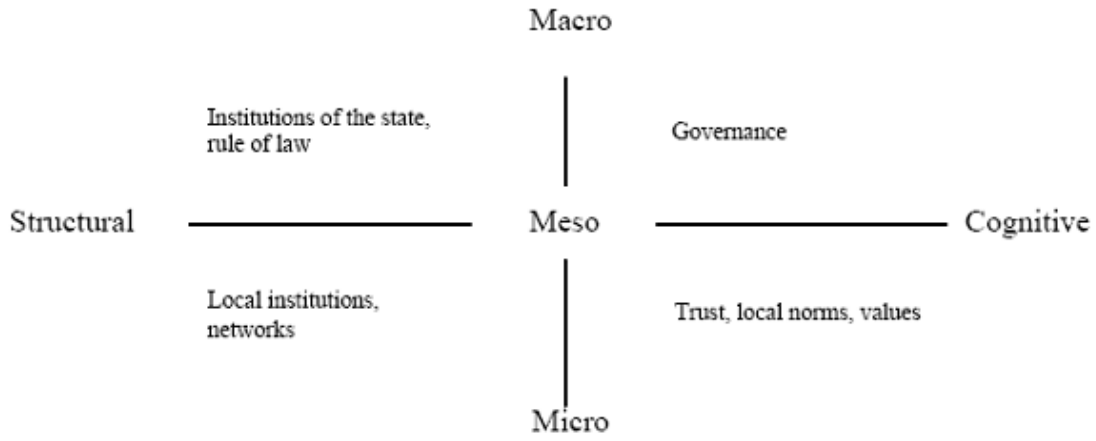

Figure 2: Forms and aims of social capital (Grootaert & Van Bastelaer, 2002: 4)

The research project on "Active Citizenship for Democracy," coordinated by the European Commission's Centre for Research on Lifelong Learning (CRELL), has produced the following definition of "Active Citizenship for Democracy" (Hoskins, 2006):

> *Participation in civil society, community and/or political life, characterised by mutual respect and non-violence and in accordance with human rights and democracy.*

Active citizenship is partially overlapping with the concept of social values concentrating its interest mostly at meso- and micro-level. Thus, active citizenship is understood in the very broadest sense of the word "participation" and is not restricted

to the political dimension. It ranges from cultural and political to environmental activities, on local, regional, national, European and international levels. It includes new and less conventional forms of active citizenship, such as one-off issue politics and responsible consumption, as well as the more traditional forms of voting and membership in parties and NGOs. The limits of active citizenship are set by ethical boundaries. People's activities should support the community and should not contravene principles of human rights and the rule of law. Participation in extremist groups that promote intolerance and violence should therefore not be included in this definition of active citizenship.

In order to build the composite indicator of active citizenship in a systematic manner it was necessary to operationalise the definition of the concept. Towards this end we identified measurable and distinctive elements in the definition of active citizenship, which we designated "dimensions of active citizenship." The dimensions are: participation in **Political Life**, **Civil Society, Community Life** and the **Values** needed for active citizenship (recognition of the importance of human rights, democracy and intercultural understanding). Then each dimension was divided into a number of sub-dimensions. The sub-dimensions and basic indicators are obviously influenced by current data availability. When forthcoming surveys provide wider data coverage for active citizenship then the sub-dimensions and base indicators could be refined and improved. The overall list of indicators is presented in the appendix

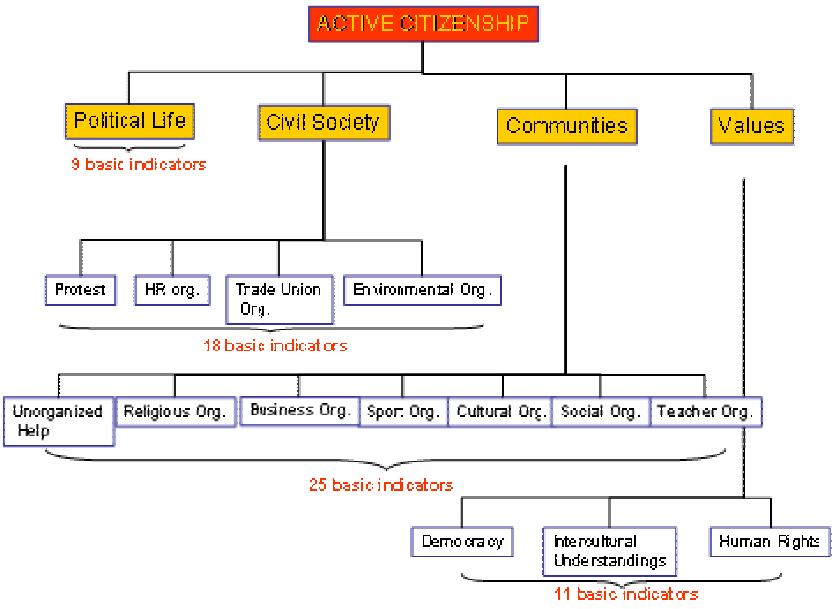

Figure 3: The Structure of the Active Citizenship Composite Indicator

1.1 Dimensions of active citizenship

The dimension of participation in **Political Life** refers to the sphere of the state and conventional representative democracy such as participation in voting, representation of women in the national parliament and regular party work (party membership, volunteering, participating in party activities and donating money). We did not further divide the dimensions of Political Life into sub-dimensions (as in the other cases), due to the fact that different sources of data were drawn upon. The basic indicators used for this dimension are presented in Table 1.

Table 1: List of basic indicators for the dimension of political life

Political Life Dimension
Description
Political parties: membership
Political parties: participation
Political parties: donating money
Political parties: voluntary work
Worked in political party/action group last 12 months
Donated money to political organisation/action group last 12 months
European Parliament - Voting Turnout
National Parliament - Voting Turnout
Women Participation in national parliament

The dimension of participation in **Civil Society** refers in this index to political non-governmental action. Civil Society has been described as "referring to the arena of un-coerced collective action around shared interests, purposes and values' (Centre for Civil Society 2006). This dimension is based on 18 indicators with the sub-dimensions of *protest*, *human rights organisations*, *environmental organisations* and *trade union organisations* (the political non-governmental organisations chosen reflect data availability). *Protest* includes activities such as signing a petition, taking part in a demonstration, boycotting products and ethical consumption. The three sub-dimensions that refer to NGOs are a combination of indicators on membership, participation in activities, volunteering and donating money. In Table 2 the list of basic indicators for the civil society dimension is shown.

The dimension of participation in **Community Life** refers to activities that are less overtly political and more orientated towards the community - 'community-minded' or 'community-spirited' activities. This dimension could also be understood

be comprehended by Civil Society but has been distinguished because these activities are more orientated towards community support mechanisms and less towards political action and accountability of governments. This dimension is based on 25 base indicators and is divided into seven sub-dimensions: unorganised help, religious organisations, business organisations, sport organisations, cultural organisations, social organisations, parent-teacher organisations (the organisations chosen here reflect data availability). Each sub-dimension referring to an organisation then comprises questions of participation, volunteering, membership and donating money. Some refining of the allocation of basic indicators between the Civil Society and Community Life dimensions may be required.

Table 2: List of basic indicators for the dimension of civil society

Civil Society Dimension

Sub-dimensions	*Description*
Protest	*Working in an organisation or association*
Protest	*Signing a petition*
Protest	*Taking part in lawful demonstrations*
Protest	*Boycotting products*
Protest	*Ethical consumption*
HR Org.	*Human Rights Organisation: membership*
HR Org.	*Human Rights Organisation: participation*
HR Org.	*Human Rights Organisation: donating money*
HR Org.	*Human Rights Organisation: voluntary work*
TU Org.	*Trade Union Org. : membership*
TU Org.	*Trade Union Org. : participation*
TU Org.	*Trade Union Org. : donating money*
TU Org.	*Trade Union Org. : voluntary work*
Env. Org.	*Environmental Org. : membership*
Env. Org.	*Environmental Org. : participation*
Env. Org.	*Environmental Org. : donating money*
Env. Org.	*Environmental Org. : voluntary work*
Protest	*Contacted a politician*

It could be argued that further survey questions would be needed to feed indicators on informal networks, informal volunteering and family networks. However, apart from the case of non-organised help in the community, data for these types of participation in the community does not currently exist.

It is important to acknowledge at this point that certain characteristics of the definition are difficult to model, e.g. verifying that the participation is non-violent and does not contravene human rights and democracy. This limitation is compensated for by the explicit inclusion of a separate dimension on values.

Table 3: List of basic indicators for the dimension of community life

Community Dimension	
Sub-dimension	*Description*
Non-Organised Help	*Non-organised help in the community*
Religious Org.	*Religious Org.: membership*
Religious Org.	*Religious Org.: participation*
Religious Org.	*Religious Org.: donating money*
Religious Org.	*Religious Org.: voluntary work*
Business Org.	*Business Org.: membership*
Business Org.	*Business Org.: participation*
Business Org.	*Business Org.: donating money*
Business Org.	*Business Org.: voluntary work*
Sports Org.	*Sport Org.: membership*
Sports Org.	*Sport Org.: participation*
Sports Org.	*Sport Org.: donating money*
Sports Org.	*Sport Org.: voluntary work*
Cultural Org.	*Cultural Org.: membership*
Cultural Org.	*Cultural Org.: participation*
Cultural Org.	*Cultural Org.: donating money*
Cultural Org.	*Cultural Org.: voluntary work*
Social Org.	*Social Org.: membership*
Social Org.	*Social Org.: participation*
Social Org.	*Social Org.: donating money*
Social Org.	*Social Org.: voluntary work*
Teacher Org.	*Teacher Org.: membership*
Teacher Org.	*Teacher Org.: participation*
Teacher Org.	*Teacher Org.: donating money*
Teacher Org.	*Teacher Org.: voluntary work*

The dimension of **Values** is a combination of indicators on *democracy* and *human rights*, the foundation for active citizenship practices, and can be found in the definition of active citizenship. We have also added *intercultural understanding* because, as highlighted earlier in this report, in the context of a culturally diverse Europe with increasing levels of migration, intercultural understanding is one of the key competences of active citizenship. This is supported by the European

Commission's Expert Group on Active Citizenship, which placed intercultural competence as the highest priority of all competences for active citizenship. The possibilities for indicators on human rights are quite limited and this sub-dimension will need to be improved with new data from forthcoming surveys. In total, the dimension of Values was based on eleven basic indicators and divided into three sub-dimensions: *human rights*, *intercultural competencies* and *democracy*. The basic indicators for this dimension are presented in Table 4.

Table 4: List of basic indicators for the dimension of values

Values Dimension

Sub-dimension	*Description*
Human Rights	*Immigrants should have same rights*
Human Rights	*Law against discrimination in the work place*
Human Rights	*Law against racial hatred*
Intercultural	*Allow immigrants of different race group from majority*
Intercultural	*Cultural life undetermined/enriched by immigrants*
Intercultural	*Immigrants make country worse/better place*
Democracy	*How important for a citizen to vote*
Democracy	*How important for a citizen to obey laws*
Democracy	*How important for a citizen to develop an independent opinion*
Democracy	*How important for a citizen to be active in a voluntary org.*
Democracy	*How important for a citizen to be active in politics*

1.2 The basic indicators and data coverage

In the field of active citizenship availability of data is a serious problem, given that not all dimensions are sufficiently covered and multi-annual data are generally not available. For example, there is limited data available on more informal and less conventional methods of participation, which have been seen to rise in recent years and which are often more culturally specific. Where possible we have included non-conventional participation such as ethical consumption and unorganised participation, but the data for traditional forms of participation are more plentiful and easier to access from survey data. Therefore our composite indicator on active citizenship must be considered as a 'training platform' on which to base future selection of indicators, while this report should be understood as an initial step towards developing composite indicators in this field.

With this in mind, the selection of indicators for the composite measure of active citizenship has been based mostly upon one source of data, which helps to

maximise the comparability of the indicators. The source of data chosen was the European Social Survey (http://www.europeansocialsurvey.org/) which ran a specific module on citizenship in 2002. This data is more up-to-date then that which is available from alternative sources such as the World Values Survey and IEA's CIVED, which is currently only available from 1999. The European Social Survey (ESS) aimed to be representative of all residents among the population aged 15 years and above in each participating country. The size and the quality of the sample make the country coverage of Europe in the ESS data reasonably good, with 19 European countries, including 18 EU member states, providing sufficient quality of data (Norway has been considered in this report because of the consistency of its results with respect to the other Nordic countries). The ESS data has not yet been used to monitor the European Community's Education and Training 2010 programme, but the survey is highly respected within academia for the quality of its data and could thus be used for this purpose in the future.

Overall, the Active Citizenship Composite Indicator presented in this paper is based on a list of 63 basic indicators (Tables 1-4 and Appendix 1). As stated above, most of these indicators use data collected in the European Social Survey of 2002. In addition, voter turnout at national and European elections has also been considered, as well as the proportion of women in national parliaments.

The total number of European countries that participated in the European Social Survey in 2002 was 21. However, due to the large amount of missing data, the two countries shown in Table 5 have been excluded from the analysis:

Table 5: Countries with large amount of missing data

Country	Missing Data
Czech Republic	68%
Switzerland	70%

In order to complete the dataset, one missing value has been imputed for Norway. The list of the 19 countries included in the analysis is given in Table 6 below.

Table 6: List of countries that have been analysed

List of Countries			
Austria	*Netherlands*	*Finland*	*Slovenia*
Italy	*Denmark*	*Portugal*	*Greece*
Belgium	*Norway*	*France*	*Ireland*
Luxembourg	*Spain*	*Sweden*	*Hungary*
Germany	*Poland*	*United Kingdom*	

2. The construction of the composite indicator

Nardo et al. (2005) define a composite indicator as "a mathematical combination of individual indicators that represent different dimensions of a concept whose description is the objective of the analysis" (p.7). Following this logic, this report summarises the concept of active citizenship into one number that encompasses different dimensions. To create this composite indicator the methodological guidelines of Nardo et al. (2005) were followed.[1]

2.1 Construction of the Active Citizenship Composite Indicator

The structure of the Active Citizenship Composite Indicator is a weighted sum of the indices computed for the four dimensions D_i (Political Life, Civil Society, Community, Values):

$$Y_c = \sum_{i=1}^{4} w_i D_{ic} \ ,$$

where $\sum_{i=1}^{4} w_i = 1$ and $0 \le w_i \le 1$ for all i=1,..4, and c=1,..,19, where *c* indicates the number of countries.

Then, each dimension index, D_i, is computed as a linear weighted aggregation of the sub-dimension indices SD_{ij}. with weights w_j^*

$$D_{ic} = \sum_{j=1}^{k_i} w^*_j SD_{ijc} \ ,$$

where $\sum_{j=1}^{k} w^*_j = 1$ and $0 \le w_j \le 1$ for all j=1,..k_i, and again the country index c=1,..,19. The value of k_i varies among the different domains D_i, and it corresponds to the number of sub-dimensions encompassed by that domain. So, for instance, for the Civil Society domain (i=1), K_1 is equal to 4 and for the Community Life Domain (i=2), k_2 is equal to 7.

Finally, each sub-dimension index SD_{ij} is a linear weighted sum of the s_{ij} normalised sub-indicators $I_{h_{i,j}c}$ with weights $w^{\#}_{h_{i,j}}$

$$SD_{ijc} = \sum_{h_{ij}=1}^{s_{ij}} w^{\#}{}_{h_{i,j}} I_{h_{i,j}c} \ .$$

[1] Further information on this process can be found in the joint OECD/JRC handbook on constructing composite indicators (Nardo et al., 2005)

Aggregating the different equations into one gives the general formula for the Active Citizenship Composite Indicator:

$$Y_c = \sum_{i=1}^{4} w_i \sum_{j=1}^{k_i} w_j^* \sum_{h_{ij}=1}^{s_{ij}} w_h^{\#} I_{h_{i,j}c}$$

Having defined the structure, the construction and evaluation of the composite indicator (CI) involve several steps. The first step is the data selection and, if necessary, the imputation of missing data. In the next step the variables must be standardised and the weighting scheme for the indicators specified. Finally, the calculation of the CI and an analysis of its robustness must be performed to improve the transparency of the process.

2.2 Standardisation

Due to the fact that the 63 basic indicators have been constructed using different scales, a standardisation process is needed before the data for the different indicators can be aggregated. Different standardisation techniques are available for this (Nardo et al., 2005). The basic standardisation technique that has been applied is the Min-Max approach. Each indicator, q, was standardised based on the following rule:

$$I_{qc} = \frac{x_{qc} - \min_c(x_{qc})}{\max_c(x_{qc}) - \min_c(x_{qc})} \quad .$$

Using this method, all the indicators have been rescaled and the standardised values lie between 0 (laggard $x_{qc}=\min_c(x_q)$) and 1 (leader, $x_{qc}=\min_c(x_q)$). In order to assess the robustness of the composite indicator, the alternative Z-score standardisation method has also been used (see Chapter 4).

2.3 Weighting of basic indicators

After the standardisation process, the data have then been transformed to ensure that for each indicator a higher score would point to a better performance. This step was clearly necessary to make a meaningful aggregation of the different indicators.

Based on the Active Citizenship Composite Indicator structure an equal weights scheme was applied within each dimension and within each sub-dimension. The assignment of equal weights to dimensions prevents rewarding dimensions with

more indicators (e.g. communities) as compared to dimensions with fewer (e.g. political life). This means that participation in political life, participation in civil society, participation in the community and "values" have the same weights for calculating the Active Citizenship Composite Indicator. In a similar way, all indicators within a sub-dimension were assigned the same weight. For example, the sub-domains of participation in protest activities, human rights, trades union, and environmental organisations would have equal weights when calculating the index for the domain "participation in Civil Society." Therefore, as a result of the structure in which there are different numbers of indicators for the different sub-dimensions, the basic indicators will not have equal weights in the composite indicator.

Following this approach, the basic indicators receiving the highest weights, 0.027, are those of the dimension of political life, while most of the indicators for the dimension of community life only have a weight of 0.009. The complete list of weights is shown in Appendix 1.

We leave for future research the possibility of consulting experts in the field of active citizenship in order to assign different weights to the various dimensions, sub-dimensions and basic indicators on the basis of socio-political theory.

3. Results

The results of the Active Citizenship Composite Indicator are presented here; first, according to each individual dimension, and then as combined indices. All scores are reported in appendix.

3.1 Civil Society

In the dimension of civil society the Nordic countries, where NGOs thrive, have high scores, and they are followed by western European countries. The lower-scoring countries are from eastern and southern Europe. The driver of this result is mainly the sub-dimension of *protest* (see Table 2), which is relatively high for all countries considered, whereas the Achilles heel is *participation* (especially in trades union). The low performance of Poland and Hungary is especially driven by a low value in *working in organisations* (6.5% for Poland and 3% for Hungary, vis á vis the 30% of the top performer) and in *participation in human rights organisations* (1% for both countries, while the top performer reaches 4.3%). Portugal shows better performance in this latter variable (2%) and Greece is particularly strong in the dimension of *protest*.

Table 7: Civil society index

Rank	*Country*
1	*Norway*
2	Sweden
3	Denmark
4	Belgium
5	Austria
6	Netherlands
7	United Kingdom
8	Germany
9	France
10	Ireland
11	Luxembourg
12	Finland
13	Slovenia
14	Spain
15	Italy
16	Portugal
17	Greece
18	Hungary
19	Poland

3.2 Community Life

The dimension of community life shows a slightly different picture (Table 8). Here high scores are achieved by the Netherlands and the United Kingdom as well as by the Nordic countries. Participation and membership in *sports and cultural activities* are the driving force of the result. The low position of Italy is mainly the result of low *participation* and *voluntary work*, even if positive signs can be found in the sub-dimension *business* (especially for membership and participation). Spain compensates for its low performance in participation and membership with excellence in *teacher organisations*. For Southern Europe, the variable *non-organised help* is probably not sufficient to represent the informal networks and family support that characterise this region. In countries like Italy, for example, activities like preserving the food heritage (e.g. the Slowfood movement), or keeping cities lively with evening street activities could be considered relevant.

Community participation scores low in Eastern Europe, especially in Poland, even though it is the country of Solidarnosc and performed quite well in the IEA 1999 CIVED. Furthermore, in Poland religious activities are more frequent than elsewhere in Europe. However, data availability prevents further analysis.

Table 8: Community dimension index

Rank	*Country*
1	*Norway*
2	Netherlands
3	Sweden
4	United Kingdom
5	Belgium
6	Ireland
7	Denmark
8	Germany
9	Austria
10	Slovenia
11	Luxembourg
12	France
13	Finland
14	Spain
15	Hungary
16	Portugal
17	Greece
18	Italy
19	Poland

3.3 Political Life

The pattern of results for the dimension of political life (Table 9) differs slightly from that of civil society and community participation.

Table 9: Political life index

Rank	*Country*
1	Austria
2	*Norway*
3	Belgium
4	Sweden
5	Denmark
6	Luxembourg
7	Germany
8	Ireland
9	Netherlands
10	Greece
11	Finland
12	Spain
13	Slovenia
14	Italy
15	United Kingdom
16	France
17	Portugal
18	Hungary
19	Poland

In this dimension, Austria and Belgium achieve high scores along with the Nordic countries. Austria comes out ahead of the Nordic countries (in spite of a relatively lower value of *women's participation in national parliament*), the only occasion in all four dimensions of active citizenship that this region does not score the highest. Austria's high score is partly due to the very high number of persons who are involved in political parties. Belgium ranks high in this dimension as a result of its policy of compulsory voting. France and UK perform less well in this dimension than in the previous two indices. Eastern European and some southern European countries have lower scores. Poland has low *voting* scores but performs relatively well in *donating money to political organisations*, whereas Hungary performs well in *democratic values* and *voting* (75% in national elections and 38% in European parliament elections) but not in *participation in politics*. Overall the countries that perform better are not those with the highest voting rates for national or European parliaments but those where participation in politics is higher.

3.4 Values

The dimension of Values (Table 10) shows a significantly different pattern from the previous three dimensions, with some countries demonstrating different behaviour and overall fewer regional distinctions. Poland scores quite well in this index and enters the top five. Portugal also scores well in sixth place.

The position of Belgium results from its relatively lower scores in the indicators on *human rights* and *voting*. About 2/3 of Belgian respondents said that they would give the same rights to immigrants and about the same number considered important the approval of laws against discrimination in the workplace or against racial hatred. In Sweden the proportions were closer to 90% and 80% respectively. On the topic of voting behaviour, in Belgium (where it is compulsory) 65% judged that voting was important (the top score is Denmark with 90%), and 34% think it is important to be active in politics (Greece has the top score here with 53%).

Sweden and Norway are again ranked high and are joined by Luxembourg in the top three.

Table 10: Values index

Rank	*Country*
1	Sweden
2	Luxembourg
3	*Norway*
4	Finland
5	Poland
6	Portugal
7	Ireland
8	Denmark
9	Austria
10	Germany
11	Netherlands
12	Italy
13	Spain
14	United Kingdom
15	Slovenia
16	France
17	Greece
18	Hungary
19	Belgium

3.5 The overall picture: the Active Citizenship Composite Indicator

Based on the model and structure proposed earlier, the indices in the four dimensions of active citizenship have been combined into one composite indicator. The results for the 19 countries are given in Table 11 and are considered in the analysis below.

Overall it can be seen that the Nordic countries Norway, Sweden and Denmark score highest. The exception seems to be Finland, which features in the middle of the table in all dimensions except Values. Among the western European countries high scores are recorded by Austria and the Benelux countries although with different profiles; whereas the Netherlands and Luxembourg have consistent performances in all dimensions considered, Belgium compensates for low scores in the dimension of Values with outstanding performance in Political Life. Generally eastern and southern European countries figure lower in the rankings. Hungary has relatively high scores in *national voting* and *non-organised help*, but has a lower overall score.

Not surprisingly the overall ranking has a strong correlation with the results of the dimension of Civil Society. Therefore, countries with an active Civil Society generally appear to have the most active citizens.

Table 11: Active Citizenship Composite Indicator

Rank	*Country*
1	*Norway*
2	Sweden
3	Denmark
4	Austria
5	Ireland
6	Belgium
7	Netherlands
8	Luxembourg
9	Germany
10	United Kingdom
11	Finland
12	France
13	Slovenia
14	Spain
15	Portugal
16	Italy
17	Poland
18	Greece
19	Hungary

Table 12: Results of path analysis: contribution (in % terms) of each domain or sub-domain to the ACCI

Civil society domain		***ACCI***
Personal engagement	27.2%	***8.0%***
HR org.	29.5%	***8.7%***
Environmental org.	21.0%	*6.2%*
TU org.	22.3%	*6.6%*
Community domain		
Non-organised help	11.6%	*3.1%*
Religious org.	13.5%	*3.6%*
Sport	15.7%	*4.2%*
Culture	15.2%	*4.1%*
Business	14.0%	*3.8%*
Teachers	14.7%	*4.0%*
Social	15.2%	*4.1%*
Values domain		
Human rights	37.0%	*6.6%*
Intercultural understanding	36.6%	*6.5%*
Democracy	26.4%	*4.7%*
Active Citizenship		
Civil society domain	29.5%	
Community life domain	26.9%	
Values domain	17.7%	
Political life domain	25.9%	

Path analysis allows us to evaluate the contribution of each individual domain and sub-domain in determining the ranking of the ACCI. Table 12 summarises the results.

The ACCI has been constructed using equal weighting of each of the four domains, thus we would expect that each domain contributes 25% to the composite. However, given the correlation structure of data the theoretical contribution is different from the actual contribution. Table 12 shows that the Civil Society and Community Life dimensions are the driving forces of the ACCI, given that they contribute to 30% of its score. On the other hand, Values amount to 17.7%. Disaggregating the contributions even further, at sub-domain level the greatest influence on the ACCI is made by the indicators regrouped under *personal engagement* and *human rights organisation* (see Appendix 1 for a detailed list of the indicators). Surprisingly, even if the dimension of Values makes the lowest overall contribution, two of its sub-domains (*human rights* and *intercultural understanding*) contribute more than 6% each to the composite indicator. Results therefore suggest

that the influence of the Community Life domain is more due to the high number of sub-domains (hence indicators) it contains rather than to the specific relevance of each sub-domain. Note that the absence of sub-divisions in the Political Life dimension prevents further analysis.

Some caveats are necessary at this point. The first and most obvious is that the validity of the results depends primarily on the availability of data. Many important variables, like *informal participation*, are poorly or not at all represented. Furthermore, active citizenship is an evolving concept, therefore some forms of active citizenship (for example the creation of websites, blogs, e-mailing, IT-related interaction, etc.) are excluded from the analysis due to the lack of comparable data.

A second caveat relates to the 'level' of active citizenship. When ranking countries it is unavoidable that some countries appear at the bottom and some at the top of the table. But does that mean that the bottom countries are performing badly, or that the top countries are performing extremely well? In absence of a benchmark for active citizenship it is impossible to say. The issue is then whether it is actually possible to create such a normative benchmark. We believe not. Citizenship has to do with culture, history and the organisation of human activities in a particular country, and diversity is a prerequisite we need to accept.

3.6 Grouping the countries based on the Active Citizenship Composite Indicator

This section will investigate what groups can be distinguished among the 19 countries under investigation. For this a technique called cluster analysis is applied.

Box 1 – a brief description of the Cluster Analysis technique

The term cluster analysis (Tryon, 1939) encompasses a number of different algorithms and methods for grouping objects of similar kinds into respective categories. We direct the reader to Kaufman and Rousseeuw (1990) for a broader introduction to this field. A general question facing researchers in many areas of this inquiry is how to organise observed data into meaningful structures, that is, to develop taxonomies. In other words, cluster analysis is an exploratory data analysis tool which aims at sorting different objects into groups in a way that the degree of association between two objects is maximal if they belong to the same group and minimal otherwise, so the members of each group are more similar to each other than to members of other groups. Cluster analysis is useful to explore the structure of data, since it provides a picture of how similar or dissimilar objects are.

In general, clustering methods can be divided into hierarchical (often called also agglomerative or joining) and partitioning (also called divisive) methods. Both of these have their own strengths and weaknesses.

In hierarchical clustering individual items are first joined to each other, and then group with each other, so that the result is a tree of cluster associations, (i.e. *tree clustering*). In this tree, the different branches are the clusters, and one can choose the appropriate level of detail by deciding which branches are viewed as separate clusters. One of the serious problems with hierarchical clustering is that small-scale variation, while in reality rather unimportant, can have a large effect on the results of the analysis: when one joins two elements at a time it is possible, and in practice common, that a larger group gets split into two branches which in turn get separated. The use of standardised values can help to reduce the impact of this problem.

In partitioning clustering methods, on the other hand, the data is divided to a specified number of clusters. Here the typical difficulty is that one has to know - or guess - the number of clusters in advance. Also, since these methods compare an item to the cluster as a whole, instead of simply two items to each other, they often do not allow the use of as wide a range of similarity measures as the hierarchical methods.

In this paper we use the hierarchical clustering approach. In particular “between-group linkage” is used, which calculates the distance between groups considering all members of that group at a given time using the Squared Euclidian distance as the measurement of similarity/dissimilarity. The Squared Euclidean distance is computed as the square of the standard Euclidean distance and is used in order to place progressively greater weight on objects that are further apart. As all the data are standardised, the use of different scales does not affect the result of the analysis. An agglomerative technique is then applied in order to construct the clusters.

The results of the cluster analysis are presented by means of a dendrogram (Figure 11) in which the clustering of the objects is presented in different steps (there is no ranking in the dendrogram – it shows only which countries are performing in similar ways). The results in the dendrogram clearly show that there are three relatively homogeneous groups. A first group can be seen at the bottom of the dendrogram. This group includes five countries that are regularly found in the group of high-performing countries, namely Sweden, Norway, Denmark, Austria and Belgium. There is a large group of countries which have mid-range scores in the Active Citizenship Composite Indicator. Within this group there is the sub-group of Germany, Ireland, the Netherlands and the UK, a sub-group of France and Slovenia and a sub-group of Finland and Luxembourg. The third group of countries is formed by the southern European countries together with Hungary and Poland.

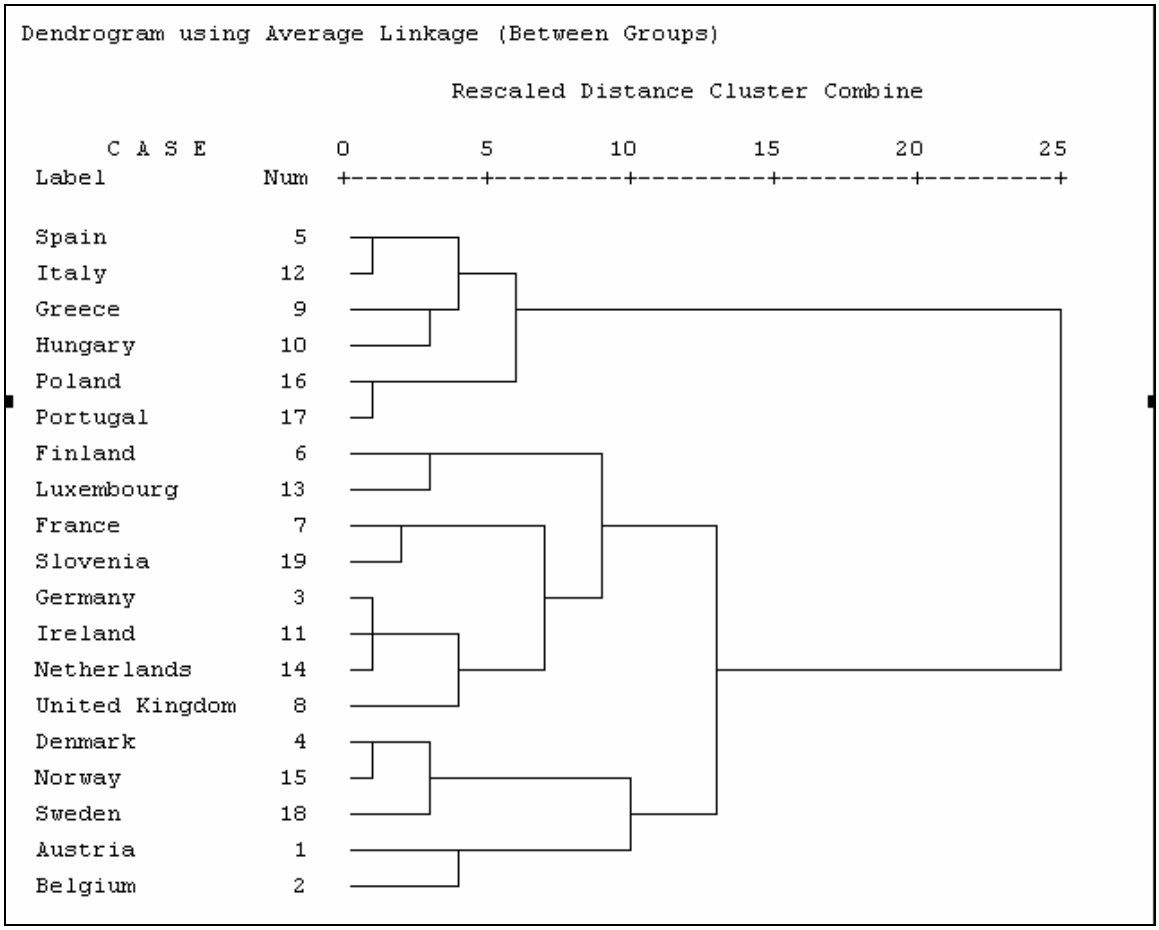

Figure 4: Dendrogram cluster analysis

The three different clusters of countries presented above give substantial confirmation that the results obtained in the Active Citizenship Composite Indicator are an accurate reflection of the score in the basic indicators as the clusters of countries can be found together in the order of the ranking.

3.7 Correlation between dimensions

In this section the correlation ratios for pairs of dimensions of the Active citizenship Composite Indicator will be explained. It is important to note that the correlations are carried out at country level; this means that we are able to discover relationships between country scores and not between the behaviour of individuals. For example, a strong correlation between participation in Community Life and participation in Civil Society means that countries that have high participation in community activities also present high participation rates in Civil Society. It does not mean that individuals who participate in civil society also participate in community activities. Active citizenship at the individual level will be explored using factor analysis later in this report (Chapter 4.1).

The analysis of the correlation ratio between the pairs of dimensions is summarised in Table 12.

Table 13: Bivariate Pearson correlation between Active Citizenship Composite Indicator and its dimensions

	Active Citizenship CI	***Civil Society***	***Communities***	***Values***	***Political Life***
Active Citizenship CI	1.000	**0.960**	**0.893**	0.479	**0.859**
Civil Society		1.000	**0.897**	0.314	**0.810**
Communities			1.000	0.149	**0.705**
Values				1.000	0.246
Political Life					1.000

The Active Citizenship Composite Indicator has the highest correlation with the dimension of civil society (r =0.96). High correlation is also found *between* the dimensions of Civil Society, Community Life and Political Life. However, the level of correlation between the overall Composite Indicator of Active Citizenship and the dimension of Values, and between Values and the other dimensions of active citizenship is not significant. Therefore, whereas the dimensions of Civil Society, Community Life and Political Life move together, the dimension of Values seems to

display a different and autonomous behaviour. This aspect surely deserves more attention in future research.

An additional interesting comparison is the analysis of the correlation between Civil Society and Community Life. The graphical representation of the correlation between the two dimensions shows two well defined clusters of countries (Figure 8). Generally eastern and southern European countries lie in the bottom left corner, whilst grouped in the top right corner are Nordic and Western European countries.

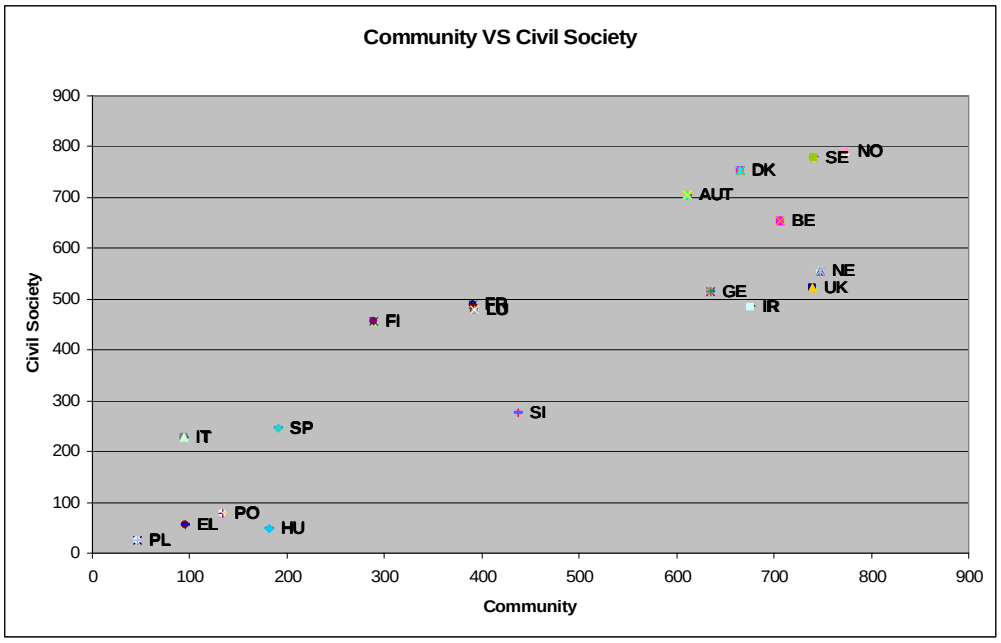

Figure 5: Correlation between community and civil society

The correlation between the different sub-dimensions can be found in Table 13. Recalling that these correlations have to be interpreted at the country level and not at the individual level, the correlation between the different (and theoretically identified sub-dimensions) of the Civil Society dimension shows that the *protest* domain correlates strongly with *human rights organisations*. In a similar way, countries with high participation in human rights organisations tend to have higher *participation in trade unions*. The weakest correlation appears between *trade unions* and *environmental organisations*.

Table 14: Bivariate Pearson correlation on the dimension of civil society

	PE	HR	EO	TU
Protest (PE)	1	**0.819557**	0.5648493	0.4924583
Human Rights (HR)		1	0.5461527	**0.7561202**
Environmental Organisations (EO)			1	0.1113306
Trade Unions (TU)				1

The analysis of participation in Community Life (Table 14) shows that for a wide variety of relationships, the correlation is above 0.5. This points to a certain homogeneity in participation. Among the sub-domains, the only variable that does not present any correlation above 0.7 is *non-organised help*, which shows a relatively low correlation with participation in organised activities.

Table 15: Bivariate Pearson correlation on the dimension of communities

	U	R	SP	C	B	T	SO
Unorganized (U)	1	0.574723	0.56156	0.479794	0.49906018	0.478552	0.496087
Religious (R)		1	**0.728887**	0.578153	0.67316943	0.686655	0.542071
Sports (SP)			1	**0.922341**	**0.74904698**	**0.772744**	**0.840359**
Cultural (C)				1	0.66148633	**0.833656**	**0.910886**
Business (B)					1	0.616325	**0.761287**
Teachers (T)						1	**0.833557**
Social (SO)							1

The dimension of Values presents a different picture (Table 15). There are no strong correlations (i.e. above 0.7) among the different sub-dimensions. Table 15 shows that having 'high' values in *democracy* seems not to be correlated with having high *intercultural understanding* or 'high' *human rights* values. Only *human rights* values seem to moderately correlate with *intercultural understanding*.

Table 16: Bivariate Pearson correlation on the dimension of values

	HR	IU	DE
Human Rights (HR)	1	0.529	0.084
Intercultural Und. (IU)		1	0.067
Democracy (DE)			1

3.8 Correlation with other social and economic indicators

In order better to understand the phenomenon of active citizenship the relationship between the Active Citizenship Composite Indicator (ACCI) and other social and economic indicators was explored. A comparison was made with the Corruption Perceptions index (CPI), GDP per capita, the Human Development Index (HDI), the Social Cohesion Index (SCI), the Global Gender Gap Index and the five benchmarks on education and training (plus investment in education) adopted by the Council (Education) in 2003.

Table 17: Correlation between the Active Citizenship Composite Indicator (and its four dimensions) and some indicators in the social and economic domain

	Active Citizenship				
	Civil society domain	***Community domain***	***Values domain***	***Political Life***	**Active Citizenship CI**
Corruption Perceptions Index	***0.862***	***0.763***	*0.432*	*0.604*	***0.840***
Global Gender Gap Index	*0.629*	*0.581*	*0.589*	*0.459*	***0.695***
Human development index 2002	***0.84***	***0.71***	*0.30*	*0.68*	**0.79**
Social cohesion index	*0.63*	*0.44*	*0.23*	*0.44*	0.59
Social cohesion index -2	***0.77***	*0.48*	*0.35*	*0.49*	**0.77**
GDP per capita (PPP US$ 2002)	***0.83***	***0.75***	*0.30*	*0.65*	**0.79**
Indicators in education and training [2]					
Early school leavers	*0.40*	*0.41*	*0.13*	*0.29*	0.39
Educational attainment	*0.27*	*0.30*	*0.02*	*0.17*	0.25
Maths and science graduates	*0.25*	*0.22*	*0.15*	*-0.06*	0.18
Low achievers	*0.44*	*0.38*	*0.34*	*0.28*	0.44
Lifelong learning	***0.68***	*0.60*	*0.52*	*0.35*	**0.66**
Investment in human resources	*0.56*	*0.40*	*0.34*	*0.27*	0.49

[2] The variables considered are the following: early school leavers (percentage of the population aged 18-24 with at most lower secondary education and not in further education or training; educational attainment (percentage of population aged 20 to 24 having completed at least upper secondary education); maths and science graduates (tertiary graduates in science and technology per 1000 of population aged 20-29); low achievers (% of pupils at level 1 or below in the PISA literacy scale); lifelong learning (percentage of the adult population aged 25 to 64 participating in education and training); and investment in human resources (public expenditure on education as a percentage of GDP). For further details see the web site http://ec.europa.eu/education/policies/2010/news_en.html

The results are presented in Table 16. Overall, the ACCI shows a high correlation with the Corruption Perceptions index, the Human Development Index and GDP per capita. The correlation is slightly lower with the Global Gender Gap Index and evidence is mixed when the benchmarks in education are considered.

3.8.1 Transparency International Corruption Perceptions Index[3]

The Transparency International Corruption Perceptions Index assesses 163 countries in terms of the degree to which corruption is perceived to exist among public officials and politicians. It is a composite index, a poll of polls, drawing on corruption-related data from expert and business surveys carried out by a variety of independent and reputable institutions. The CPI reflects views from around the world, including those of experts who are living in the countries evaluated. The Corruption Perceptions Index scores have a theoretical range between 0.0 (perceived as highly corrupt) and 10.0 (perceived as very clean). The nineteen countries we study have Corruption Perceptions Index scores ranging between 3.7 (Poland) and 9.6 (Finland), close to or better than the world's average performance (4.1) which corresponds also to the 66.6 percentile, as 1/3 of the countries score higher. Finland, Iceland and New Zealand are the world's top performing countries.

The correlation between the Corruption Perceptions Index scores and the ACCI scores is high (- 0.840), particularly in the relationship with the dimension of Civil Society (*political non-governmental action*) and then with the dimension of Community Life.

3.8.2 Per capita GDP[4]

The correlation with GDP per capita (measured in PPP US Dollars) is also high (0.79) and even higher when considering the connection to the dimension of Civil Society (0.83); it is still high for Community Life participation (0.75). However, the correlation is quite low when compared to the dimension of Values (0.30). It should be noted that it is the level of per capita GDP that matters rather than its distribution, given that the correlation between the ACCI and the Gini index is below 0.4 for all

[3] http://www.transparency.org/policy_research/surveys_indices/cpi
[4] Source World Bank http://www.worldbank.org/

the dimensions considered. This raises a number of challenging issues for future research.

There might well be some kind of Kuznets' curve for citizenship, also linked to Maslow's hierarchy of needs, implying a lower level of citizenship at early stages of development, a positive relationship between active citizenship and GDP per capita up to a certain point at which, due to the improved economic situation, citizenship stabilizes. Citizenship might decline at a later stage of development due to other factors like economic anxiety about loss of jobs or fear of globalisation.

3.8.3 Human Development Index[5]

The Human Development Index (HDI) can be thought of as a measure of well-being as well as a measure of the impact of economic policies on quality of life. It includes comparative measures of life expectancy, literacy, education, and standards of living for countries worldwide, ranking them on a scale ranging between 1 and 0. GDP per capita is one component of the HDI. The index was developed in 1990 by the economist Mahbub ul Haq and has been used since 1993 by the United Nations Development Programme in its annual Human Development Report (http://hdr.undp.org/reports/). The link with active citizenship can be found in the Human Development Report itself (UNDP, 2004, p. 6):

> Human development requires more than health, education, a decent standard of living and political freedom. People's cultural identities must be recognized and accommodated by the state, and people must be free to express these identities without being discriminated against in other aspects of their lives. In short: cultural liberty is a human right and an important aspect of human development—and thus worthy of state action and attention.

Table 16 shows a high and significant correlation between the HDI and the ACCI (0.79) and with two of its dimensions: Civil Society (0.84) and Community Life (0.71). Not surprisingly this resembles the relationship between the ACCI and GDP per capita. Thus, both results provide evidence to support the argument that high levels of prosperity are linked to high levels of civil and community participation. The direction of this causal link is, however, difficult to determine.

[5] http://hdr.undp.org/

The absence of time series data prevent any statistical testing on causality. Moreover, the fundamental difficulty in establishing causal links resides in the inherent complexity of phenomena like active citizenship and the feedback and reinforcements that these variables have. On the other hand, the strong correlation found with the TICI also points to the existence of more general "enabling factors," such as respect for the rule of law, trust and attention to the common good, such as providing a developed welfare system.

Worthy of mention is the fact that both Values and Political Participation seem to have a weak relationship with all the indicators presented in Table 16.

3.8.4 Social cohesion

To the best of our knowledge the only index of social cohesion is the Social Cohesion Index (Green et al., 2003), which combines measures for general trust and trust in democracy, civic cooperation (attitudes to cheating on taxes and public transport), and violent crime. This index scores 15 countries (11 of which are also in the ACCI) without explaining the methodology used to assemble data coming from different sources. Another difference from the ACCI is the year of the dataset used (1996), which could partially explain the modest correlation found with the ACCI. Note that this correlation rises significantly if two countries (Sweden and Poland) are eliminated from the dataset due to the rise in correlation between the ACCI and civic cooperation and violent crime. The lack of disaggregated data prevents further analysis.

3.8.5 Gender Gap Index[6]

The Gender Gap Index was first launched in May 2005 by the World Economic Forum in an attempt to assess the size of the gender gap in 58 countries using economic, education, health and politically-based criteria (Hausmann *et al.*, 2006). The Global Gender Gap Index 2006, the second in the series, covers over 115 economies, which comprehends over 90% of the world's population and was compiled by researchers from Harvard University, the London Business School and the World Economic Forum. The index measures gaps between men and women in four areas: economic participation and opportunity, educational attainment, health and

[6] http://www.weforum.org/en/initiatives/gcp/Gender%20Gap/index.htm

survival and political empowerment. By quantifying differences between the sexes in access to resources or opportunities, rather than measuring absolute levels, the researchers sought to remove the impact of economic development. The Gender Gap Index scores have a theoretical range between 0.00 (perfect inequality) and 1.00 (perfect equality). The nineteen countries we study have Gender Gap Index scores ranging between 0.64 (Italy) and 0.81 (Sweden), close to or better than the world's average performance of 0.66. It is worth mentioning that only 1/3 of the 115 countries have scores greater than 0.68. Sweden is the top performing country in the entire set of 115 countries included in the Gender Gap Index.

The scores in Table 16 show that there is a statistically significant correlation between the Gender Gap Index scores and the ACCI scores (0.695). Nevertheless, at similar levels of Gender Gap there is high variation in the ACCI scores, whilst at similar levels of ACCI scores the variation in the Gender Gap scores is much lower. The spread in scores is greatest at lower levels of Gender Gap. For example, Luxembourg does far better than Hungary in active citizenship at a similar level of Gender Gap. Germany achieves much higher levels of Gender Gap than Luxembourg at a similar level of active citizenship. Four of the five Nordic countries in this study (Norway, Sweden, Denmark and Sweden) have top scores in both the ACCI and the Gender Gap, but Finland's performance in active citizenship is much lower than in the Gender Gap Index.

3.8.6 Education and training[7]

The ACCI displays weaker correlations with indicators on education and training. The highest correlation (0.6) is with the lifelong indicator (the percentage of the adult population aged 25 to 64 participating in education and training). The remaining benchmarks from the European Commission's Education and Training 2010 agenda reveal weaker relationships. This appears to indicate that education (as measured by the six benchmarks) is only weakly related to active citizenship at a country level. However, the high correlation with the HDI (which contains educational variables) suggests the need for further research.

[7] http://ec.europa.eu/education/policies/2010/doc/after-council-meeting_en.pdf

4. Robustness analysis

The robustness of the Active Citizenship Composite Indicator has been tested in different ways. In a first step the proposed theoretical structure for the different dimensions of Active Citizenship was checked by performing Factor Analyses on the available data from ESS 1. Following this the sensitivity analysis was performed and a plurality of scenarios (all with their implication in terms of standardisation, weighting schema and alternative ways of composing the composite indicator) were compared to the approach that was proposed and followed in this report.

It will be seen that the different factor analyses within each of the dimensions corroborate the theoretical structure. In other words, the statistical structure of the data corresponds to the theoretical structure of the sub-dimensions within each of the dimensions. Each of the dimensions can be considered to be a multidimensional index compounded of different underlying principles that are not redundant.

In order to investigate the robustness of the proposed composite indicator an alternative model based on a non-linear/non compensatory multi-criterion approach to compute the Active Citizenship Composite Indicator was investigated. The results of this alternative approach show that compensability in the construction of the Active Citizenship Composite Indicator is not an issue. In fact both compensatory (linear aggregation) and not-compensatory approaches give the same results. In other words no major conflict exists in the indicators chosen. This result supports the approach adopted in the previous paragraphs, confirming the robustness of the Active Citizen Composite Indicator.

In order to investigate the robustness of the ranking based on the proposed composite indicator, the rankings based on several methods of weighting, structures and standardisation methods were compared in the sensitivity analysis. To ensure the validity of the messages conveyed by this composite indicator, it is important that the sensitivity of the EU country rankings to the structure and aggregation approach be adequately studied in order to show that the composite indicator does not depend heavily on data treatment, weighting set, standardisation approach or aggregation method. The validity of the Active Citizenship ranking has been assessed by evaluating how sensitive it is to the assumptions that have been made about its structure and the aggregation of the 63 individual indicators. The sensitivity analysis

was undertaken with respect to four sources of uncertainty: (1) dimension structure, (2) weighting method, (3) aggregation approach, whether it is non-linear/non-compensatory multi-criteria, or an additive aggregation and (4) standardisation technique. For the sensitivity analysis of the Active Citizenship Composite Indicator, 12 scenarios in total were analysed. The overall ranking is not sensitive to any of the four major methodological choices made to develop the composite ranking. In the worst cases, the shift in rank is two positions only, which is mostly due to the aggregation method (non-linear/non-compensatory multi-criteria). This outcome produces a high degree of confidence that the Active Citizenship Composite Indicator provides a solid framework for assessing relative performance between the EU countries in a robust way.

In the following section the sensitivity analysis will be explained in detail, presenting first the results of factor analysis; then an alternative way to measure active citizenship based on non-linear/non-compensatory multi-criterion approach; and finally the results of the sensitivity analysis.

4.1 Factor Analysis

Factor Analysis (FA) can be used to group the information contained in the indicators. The aim is to explore whether the different dimensions of the phenomenon are statistically well balanced in the composite indicator. The higher the correlation between the indicators, the fewer statistical dimensions will be present in the dataset. However, if the statistical dimensions do not coincide with the theoretical dimensions of the dataset, then a revision of the set of the indicators might need to be considered. The check of the structure of the different dimensions is addressed in section 4.2.1. Based on the results of the Factor Analysis for each of the indicators a weight can be calculated to be used in the aggregation of the data. The weights were calculated following Nardo et al.'s (2005b, pp. 56-58) guidelines on the construction of composite indicators. This is dealt with in section 4.2.2.

4.1.1 Investigating the robustness of the theoretical structure of the dimensions

Factor analysis was used in order to explore whether the theoretical composition of the dimensions and the sub-dimensions was supported by the data. Factor analysis is a statistical technique that identifies underlying factors that explain correlations between the indicators. In this way, we can identify how the different indicators are

related to each other within each dimension. A broader introduction to Factor Analysis can be found in Stevens (1986) and Kim, J. e Mueller (1978, 1978b).

The factor analysis was done using the Principal Components extraction method. A varimax rotation was conducted to facilitate the interpretation of the results. By rotating one looks for a so-called 'simple structure' which implies that items have high loadings on as few factors as possible and at the same time factors have many high and many low loadings. Varimax rotation is an orthogonal rotation resulting in independent, uncorrelated factors. The tables with the extraction of the different components and the scree plots are included in Appendix 2.

Civil Society

Eighteen indicators were included for the Civil Society dimension. The factor analysis shows that five components have Eigenvalues greater than 1. These components jointly explain 48% of the variance.

In Table 17 the factor loadings for each of the indicators on the components are shown. The first component encompasses indicators referring to protest activities, such as “having signed petitions in the last 12 months” or “boycotted certain products for political/ethical reasons.” The second component refers to people that are members of, participate in, donate money to and do voluntary work for trade unions. The third component groups indicators referring to humanitarian organisations. The fourth component is more difficult to interpret. It has a negative loading for boycotting products for political reasons and positive loadings for membership and donating money to environmental and humanitarian organisations. To some extent, the component refers to people that are involved in civil society in a somewhat passive way. They provide money to certain types of organisations but they do not boycott products or behave actively in other form of participation. The fifth component groups indicators on environmental, peace or animal organisations. Except for the passive participation element, all the other components were hypothesised in the original theoretical structure of the Active Citizenship Composite Indicator.

Table 18: Rotated component loading matrix for the Civil Society dimension

	Component				
	1	2	3	4	5
S1	**0.53**	-0.15	-0.23	0.03	-0.09
S2	**0.65**	-0.02	-0.03	-0.17	-0.02
S3	**0.56**	-0.03	-0.06	0.16	-0.16
S4	**0.63**	0.03	0.04	-0.31	0.03
S5	**0.60**	-0.01	0.00	**-0.42**	0.07
S18	**0.50**	-0.10	-0.11	0.10	-0.09
S6	-0.14	0.06	**0.58**	0.29	-0.06
S7	-0.09	0.01	**0.74**	0.00	0.15
S8	-0.07	0.09	0.33	**0.63**	-0.10
S9	-0.06	0.02	**0.77**	0.00	0.08
S10	-0.11	0.03	0.03	**0.47**	**0.42**
S11	-0.14	0.02	0.08	0.07	**0.73**
S12	0.00	0.03	-0.01	**0.71**	0.26
S13	-0.05	0.02	0.07	0.06	**0.74**
S14	-0.19	**0.55**	-0.02	0.21	-0.14
S15	-0.07	**0.73**	0.04	-0.01	0.04
S16	0.04	**0.66**	0.00	0.05	0.05
S17	-0.05	**0.66**	0.07	-0.08	0.07

Community Life

The dimension Community Life consisted of 25 indicators referring to membership, participation, voluntary work and having donated money to different types of organisations with an extra indicator for providing help which is not part of the organised voluntary work. The factor analysis shows seven components with Eigenvalues greater than 1. The seven components jointly explain 54 percent of the variance.

The factor loadings confirm that community-minded action is divided into different subgroups following the applied theoretical structure. The first six components refer to different organised forms of community participation. The Factor Analysis clearly shows that these are distinct modes of community participation since there is no overlap in the components. The seventh component has a negative loading for non-organised support in the community, and positive loadings for the different indicators of membership of a certain organisation. The results show that people who

are not members of organisations are those who are more likely to report themselves as helping in an non-organised volunteering context.

Table 19: Rotated component loading matrix for the Community support dimension

	Component						
	1	2	3	4	5	6	7
S19	-0.10	-0.04	-0.05	-0.08	-0.07	-0.04	**-0.39**
S20	**0.65**	0.01	0.02	0.02	-0.01	0.03	**0.31**
S21	**0.78**	0.06	0.06	0.03	0.04	0.03	0.03
S22	**0.77**	0.06	0.06	0.06	0.08	0.05	-0.07
S23	**0.73**	0.08	0.08	0.01	0.06	0.02	0.00
S24	0.00	0.00	0.04	**0.66**	0.01	0.02	**0.41**
S25	0.03	0.06	0.08	**0.75**	0.06	0.04	0.12
S26	0.09	0.08	0.16	**0.63**	0.07	0.12	-0.26
S27	0.01	0.06	0.11	**0.73**	0.07	0.04	0.01
S28	0.02	0.05	**0.66**	0.04	0.01	0.03	**0.43**
S29	0.06	0.09	**0.71**	0.13	0.08	0.05	0.13
S30	0.11	0.09	**0.67**	0.11	0.08	0.10	-0.23
S31	0.05	0.10	**0.75**	0.10	0.06	0.03	0.00
S32	0.02	-0.01	0.02	0.04	0.05	**0.65**	0.29
S33	0.02	0.04	0.06	0.06	0.07	**0.75**	0.05
S34	0.05	0.01	0.05	0.05	0.04	**0.68**	-0.12
S35	0.02	0.04	0.04	0.03	0.05	**0.68**	-0.05
S36	0.01	**0.66**	0.05	-0.01	-0.02	0.00	0.38
S37	0.04	**0.76**	0.09	0.07	0.04	0.02	0.10
S38	0.10	**0.67**	0.06	0.07	0.06	0.05	-0.21
S39	0.07	**0.74**	0.11	0.07	0.07	0.03	-0.03
S40	0.01	-0.01	0.04	0.02	**0.65**	0.06	**0.34**
S41	0.04	0.04	0.06	0.06	**0.74**	0.06	0.10
S42	0.09	0.05	0.04	0.04	**0.63**	0.06	-0.19
S43	0.04	0.06	0.07	0.07	**0.75**	0.04	0.00

Values

The dimension of Values, in relation to democracy and human rights, was composed of 12 indicators. Within this dimension two analyses were carried out. The first analysis identified four components with Eigenvalues greater than 1. Because the Eigenvalue of the fourth component is very close to 1, and because a solution with

three components might be more in line with the theoretical assumption about the sub-dimensions within the Values dimension, a second FA was carried out considering only three components.

In both FA analyses the results were similar. The only difference is that in the first FA with four components the sub-dimension *democracy* is split up into two groups. Table 19 shows the loadings for a solution with three components. The first component captures positive attitudes towards immigrants, confirming the sub-dimension of *intercultural understanding*. The second refers to *attitudes towards democracy*. The third captures *human rights*. These three components confirm the theoretical structure except in the case of indicator S44 (i.e. that immigrants should be given same rights as everyone else) which shifts from the *human rights* sub-dimension to the *intercultural understanding* sub-dimension.

Table 20: Rotated component loading matrix values

	Component		
	1	2	3
S44*	**-0.54**	-0.09	-0.08
S45	0.15	0.05	**0.91**
S46	0.13	0.05	**0.91**
S47*	**-0.73**	0.05	-0.07
S48	**0.80**	0.04	0.12
S49	**0.82**	0.05	0.04
S50	0.06	**0.71**	0.06
S51	-0.15	**0.59**	0.10
S52	0.07	**0.55**	0.14
S53	0.07	**0.69**	-0.07
S54	0.10	**0.70**	-0.11

* Reverse scale

Political Life

The political life dimension was a combination of nine indicators. Since three of the nine indicators stem from sources other than the ESS1, it was not possible to conduct a factor analysis to confirm the assumption of any structure for this dimension.

In conclusion, it can be said that the different factor analyses within each of the dimensions corroborate the theoretical structure. In other words, the statistical structure of the data corresponds to the theoretical structure.

4.1.2 Computation of the FA weights

Calculations of the weights for the basic indicators based on the Factor Analysis approach were performed following Nardo et al. (2005b). Performing the factor analysis on each dimension, the theoretical sub-dimension structures were replaced by the component structure. Based on this structure and the loadings for each basic indicator, a weight was calculated and is presented in Appendix 1. Because no factor analysis could be performed for the Political Life dimension all the indicators for this dimension have been given equal weights of 1/4/9.

4.2 An alternative method to measure Active Citizenship: a multi-criterion-based composite indicator

In order to investigate the robustness of the proposed ACCI, in this section an alternative model based on the non-linear/non compensatory multicriterion approach to compute the Active Citizenship Composite Indicator is presented. First, a brief review of the multicriterion approach is given, then the computation of the multicriterion based composite indicator is performed.

4.2.1 A non-linear/non-compensatory multi-criterion approach for composite indicator building

Although various functional forms for the underlying aggregation rules of a composite indicator (here the term *composite indicator* is used as a synonym of *index*) have been developed in the literature (e.g. Journal of Economic and Social Measurement, 2002), in the standard practice, a composite indicator CI_n for a given country *n*, can be considered a weighted linear aggregation rule applied to a set of variables (Nardo et al., 2005a):

$$CI_n = \sum_{m=1}^{M} w_m y_{mn} , \qquad (1)$$

where y_{mn} is usually a scale adjusted variable (e.g. GDP per capita) normalized between zero and one, and w_m a weight attached to y_{mn}, with $\sum_{m=1}^{M} w_m = 1$ and $0 \le w_m \le 1$, $m = 1,2,...,M$.

Munda and Nardo (2005) analyse the formal axioms behind the linear aggregation rule and their operational implications and they propose the use of non-linear aggregation rules to construct composite indicators when weights with the meaning *of importance coefficients* (i.e. the bigger the weight the more important the individual indicator*)* are used or when the assumption of preferential independence does not hold. Moreover, in standard linear composite indicators, compensability among the different individual indicators is always assumed; this implies complete substitutability among the various components considered. For example, in a hypothetical sustainability index, economic growth can always substitute any environmental destruction or inside e.g., the environmental dimension, clean air can compensate for a loss of potable water. In the case of the Active Citizenship Composite Indicator, compensability would imply that e.g. a good performance on the individual indicators belonging to the dimension Political Life can neglect the influence of a low score on the indicators belonging to the dimension Community Life. From a normative point of view, such a complete compensability is often not desirable.

For all these reasons, in order to explore a different way to build a composite indicator, a non-linear/non-compensatory Condorcet consistent aggregation rule was used to compute the Active Citizenship Composite Indicator. For the sake of clarity, some basic definitions are given (see Munda & Nardo, 2007).

Dimension: is the highest hierarchical level of analysis and indicates the scope of objectives, individual indicators and variables. In the case of the Active Citizenship Framework, dimensions are Civil Society, Community Life, Values and Political Life.

Objective: an objective indicates the direction of change desired. For example, the individual indicator *social organisations-membership* has to be maximised; while social exclusion has to be minimised.

Individual indicator: it is the basis for evaluation in relation to a given objective (any objective may imply a number of different individual indicators). It is a *function* that associates each single country with a variable indicating its desirability according to

expected consequences related to the same objective. For example, in economics, GDP, saving rate and inflation rate inside the objective "growth maximisation."

Variable: is a constructed measure stemming from a process that represents, at a given point in space and time, a shared perception of a real-world state of affairs consistent with a given individual indicator. To give an example, in comparing two countries, inside the economic dimension, one objective can be "maximisation of economic growth"; the individual indicator might be R&D performance, the indicator score or variable can be "number of patents per million of inhabitants." Another example: an objective connected with the social dimension can be "maximisation of the residential attractiveness." A possible individual indicator is then "residential density." The variable providing the individual indicator score might be the ratio persons per hectare.

A composite indicator or synthetic index is an aggregate of all dimensions, objectives, individual indicators and variables used. This implies that what formally defines a composite indicator is the *set of properties underlying its aggregation convention*.

When various individual indicators are used to evaluate two different countries, some of these individual indicators may be in favour of country ***a*** while other variables may be in favour of country ***b***. As a consequence a conflict among the individual indicators exists. How this conflict can be treated at the light of a non-linear/non-compensatory logic? This is the classical multi-criteria discrete problem (Munda, 1995). With this analogy in mind, Munda and Nardo (2007) present an aggregation convention for (non-linear and non-compensatory) composite indicators able to rank different countries (or regions, cities and so on). For more details see Box 1.

The *discrete multi-criterion problem* can be described in the following way: *A* is a finite set of *N* feasible actions (or alternatives); *M* is the number of different points of view or evaluation criteria g_m $i=1, 2, \ldots, M$ considered relevant in a policy problem, where the action ***a*** is evaluated to be better than action ***b*** (both belonging to the set *A*) according to the *m-th* point of view if $g_m(a)>g_m(b)$.

In synthesis, the information contained in the impact matrix is useful for solving the so-called multi-criterion problem:

- *Intensity of preference* (when quantitative criterion scores are present).
- *Number* of criteria in favour of a given alternative.
- *Weight* attached to each single criterion.

- *Relationship* of each single alternative with all the other alternatives.

Combinations of this information generate different aggregation conventions, i.e. manipulation rules of the available information to arrive at a preference structure. The aggregation of several criteria implies taking a position on the fundamental issue of compensability. *Compensability* refers to the existence of trade-offs, i.e. the possibility of offsetting a disadvantage on some criteria by a sufficiently large advantage on another criterion, whereas smaller advantages would not do the same. Thus a preference relation is non-compensatory if no trade-off occurs and is compensatory otherwise. The use of weights with intensity of preference originates compensatory multi-criteria methods and gives the meaning of trade-offs to the weights. On the contrary, the use of weights with ordinal criterion scores originates non-compensatory aggregation procedures and gives the weights the meaning of importance coefficients.

To give an illustrative example of what compensability means, let us assume a hypothetical composite formed by inequality, environmental degradation, GDP per capita and unemployment, two countries, one with values 21, 1, 1, 1; and the other with 6,6,6,6 would have equal composite if the aggregation is additive, i.e. fully compensatory. Obviously the two countries would represent very different social conditions that would not be reflected in the composite. If the aggregation rule is desired to be partially compensatory, the use of a geometric aggregation, $CI_n = \prod_{m=1}^{M} y_{mn}^{w_m}$ is the right solution. In our simple example the first country would have a much lower composite than the second if the aggregation were geometric (2.14 for the first and 6 for the second). The aggregation rule presented in Box 1 is fully non-compensatory.

Box 4. A non-linear/non-compensatory aggregation rule for composite indicators

Given a set of individual indicators $G=\{g_m\}$, $m=1,2,...,M$, and a finite set $A=\{a_n\}$, $n=1, 2,..., N$ of countries, let us assume that the variable (i.e. the individual indicator score) of each country a_n with respect to an individual indicator g_m is based on an *ordinal, interval or ratio* scale of measurement. For simplicity of exposition, we assume that a higher value of a variable is preferred to a lower one (i.e. the higher, the better), that is:

$$\begin{cases} a_j P a_k \Leftrightarrow g_m(a_j) > g_m(a_k) \\ a_j I a_k \Leftrightarrow g_m(a_j) = g_m(a_k) \end{cases} \quad (2)$$

Where, P and I indicate a preference and an indifference relation respectively, both fulfilling the transitive property.

Let us also assume the existence of a set of individual indicator weights $W=\{w_m\}$, $m=1,2,...,M$, with $\sum_{m=1}^{M} w_m = 1$, derived as importance coefficients. The mathematical problem to be dealt with is then how to use this available information to rank in a complete pre-order (i.e. without any incomparability relation) all the countries from the best to the worst one.

The mathematical aggregation convention proposed can be divided into two main steps (Munda & Nardo, forthcoming):

1. Pair-wise comparison of countries according to the whole set of individual indicators used.
2. Ranking of countries in a complete pre-order.

A $N \times N$ matrix, E, called *outranking matrix* (Arrow and Raynaud, 1986) can be built. Any generic element of the matrix E, e_{jk} , $j \neq k$ is the result of the pair-wise comparison, according to all the M individual indicators, between countries j and k. Such a global pair-wise comparison is obtained by means of equation (2).

$$e_{jk} = \sum_{m=1}^{M} \left(w_m(P_{jk}) + \frac{1}{2} w_m(I_{jk}) \right) \qquad (3)$$

where $w_m(P_{jk})$ and $w_m(I_{jk})$ are the weights of individual indicators presenting a preference and an indifference relation respectively. It clearly holds

$$e_{jk} + e_{kj} = 1. \qquad (4)$$

Property (4), although obvious, is very important since it allows us to consider the outranking matrix E as a *voting matrix* i.e., a matrix where instead of using individual indicators, alternatives are compared by means of voters' preferences (with the principle one agent one vote). This analogy between a multi-criterion problem and a social choice one, as noted by Arrow and Raynaud (1986), is very useful for tackling the step of ranking the N countries in a consistent axiomatic framework.

The maximum likelihood principle selects as a final ranking the one with the maximum pair-wise support. This selected ranking is the one which involves the minimum number of pair-wise inversions. The adaptation of the maximum likelihood ranking procedure to the ranking problem we are dealing with is reasonably simple. The maximum likelihood ranking of countries is the ranking supported by the maximum number of individual indicators for each pair-wise comparison, summed over all pairs of countries considered. More formally, all the $N(N-1)$ pair-wise comparisons compose the outranking matrix E, where $e_{jk} + e_{kj} = 1$, with $j \neq k$. Call R the set of all $N!$ possible complete rankings of alternatives, $R=\{r_S\}$, $s=1,2,...,N!$. For each r_S, compute the corresponding score φ_s as the summation of e_{jk} over all the $\binom{N}{2}$ pairs j,k of alternatives, i.e.

$$\varphi_s = \sum e_{jk} \quad . \qquad (5)$$

$$where\ j \neq k,\ s = 1,2,...N!\ \ and\ \ e_{jk} \in r_s$$

The final ranking ($r*$) is the one which maximises equation (6), which is:

$$r* \Leftrightarrow \varphi_* = \max \sum e_{jk} \qquad where\ e_{jk} \in R. \qquad (6)$$

4.2.2 Computing the Active Citizenship Composite Indicator: Results and Analysis

In order to overcome some of the inconsistencies of additive models here a "non-compensatory" aggregation procedure for the Active Citizenship Framework is used. As already explained (see Box 4), this approach employs a mathematical formulation (Condorcet-type of ranking procedure) to rank in a complete pre-order (i.e. without any incomparability relation) all the countries from the best to the worst after a pair-wise comparison of countries across the whole set of the available indicators.

In this report, the overall ranking is based on equal weights for the indicators within each dimension, and equally weighting the dimensions. In other words, each indicator within the Civil Society dimension receives a 1/4/18 weight, each indicator within Community Life a 1/4/25 weight, each indicator within Values a 1/4/11 weight, and finally each indicator within Political Life a 1/4/9 weight.

The Active Citizenship Framework and the subsequent aggregation of the information provide fertile ground for the analysis of EU country-level performance. The findings, and a review of the European Union leaders and laggards in active citizenship, confirm some common perceptions about the determinants of policy success. But they also reveal some surprises and otherwise unexpected relationships among countries.

4.2.3 Overall Results

The *top five countries* in the alternative version of the Active Citizenship Composite Indicator are Sweden, Norway, Denmark, Austria and Belgium. The *five lowest ranking countries* are Italy, Portugal, Greece, Hungary and Poland. Mid-ranking performers include the remaining nine countries included in the analysis – Ireland, Germany, Netherlands, Luxembourg, Finland, United Kingdom, France, Slovenia and Spain.

Table 20 presents the final non-compensatory ranking together with the ranking for each of the four dimensions. The overall ranking is based on Z-scores standardisation, equal weights for the individual indicators within each dimension, and equally weighting the dimensions.

However, the top ranking countries do not necessarily have the highest scores in all four dimensions. In fact, Austria has mid-table performance in Community Life and Values. On the other hand, the bottom-five performing countries do not necessarily have the lowest performance in all four dimensions. To give an example,

Poland has a top-five performance in Values, while Portugal has mid-table performance in the same dimension. For the mid-ranking countries, performance is medium in almost all four dimensions. Some exceptions are the Netherlands (top-five performance in Community Life), the United Kingdom (top-five performance in Community Life, but bottom-five performance in Political Life) and Luxembourg (top-five performance in Values).

Table 21: Rank of the Countries in Active Citizenship and its four dimensions under a non-linear/non-compensatory aggregation

	Overall	Civil Society	Community	Values	Political Life
Sweden	**1**	**1**	**2**	**1**	**2**
Norway	**2**	**3**	**1**	**3**	**4**
Denmark	**3**	**2**	**7**	**5**	**5**
Austria	**4**	**6**	**9**	**11**	**1**
Belgium	**5**	**4**	**4**	**19**	**3**
Ireland	**6**	**8**	**6**	**7**	**10**
Germany	**7**	**5**	**8**	**8**	**6**
Netherlands	**8**	**11**	**3**	**10**	**7**
Luxembourg	**9**	**10**	**11**	**2**	**8**
Finland	**10**	**12**	**13**	**6**	**13**
United Kingdom	**11**	**9**	**5**	**14**	**17**
France	**12**	**7**	**10**	**16**	**16**
Slovenia	**13**	**15**	**12**	**15**	**12**
Spain	**14**	**14**	**14**	**13**	**11**
Italy	**15**	**13**	**18**	**12**	**15**
Portugal	**16**	**16**	**16**	**9**	**14**
Greece	**17**	**19**	**17**	**18**	**9**
Hungary	**18**	**17**	**15**	**17**	**18**
Poland	**19**	**18**	**19**	**4**	**19**

Figure 4 compares the results of the non-linear/non-compensatory multi-criteria method with the ranking of an additive aggregation scheme (fully compensatory). In both cases we use Z-scores standardisation and we weight equally the indicators within each dimension, and furthermore assign equal weights to the dimensions. The high linearity of the scatterplot (Spearman rank, r =0.986) means that in the construction of the Active Citizenship Composite Indicator, compensability is not an issue. In fact both compensatory (linear aggregation) and not-compensatory

approaches give the same results. In other words no great conflict exists in the indicators chosen. This result upholds the approach adopted in the previous chapters, confirming the robustness of the Active Citizen Composite Indicator proposed in Section 2.

The information provided both in number and intensity shows a consistent trend among the same countries.

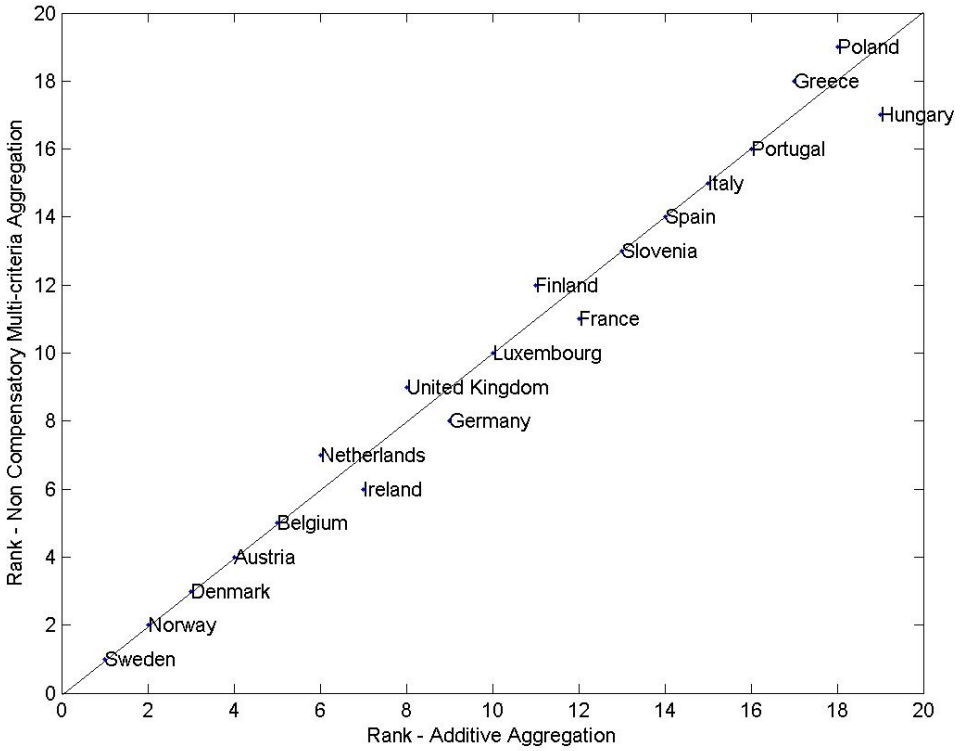

Figure 6: Country ranking in the Active Citizenship Composite Indicator using the non-linear/non-compensatory multi-criterion rule versus an additive aggregation scheme. Indicators are equally weighted at dimension level.

It should be noted that this is not always the case. For example, in the case of the *2005 "Environmental Sustainability Index" (ESI),* the results obtained by means of the non-linear/non-compensatory aggregation rule and of the linear one differ mainly in the middle-of-the-road and, to a lesser extent, the leader and the laggard countries in the ranking (see the methodological Appendix of Esty et al., 2005). Using the non-linear/non-compensatory approach, 43 out of 146 countries display a change in rank greater than 10 positions. When compensability among indicators is not allowed, countries with very poor performance in some indicators, such as Indonesia or

Armenia, worsen their rank with respect to the linear yardstick, whereas countries that have less extreme values improve their situation, such as Azerbaijan or Spain. Table 21 shows the countries displaying the largest variation in their ranking.

Table 22: ESI rankings obtained by linear aggregation (LIN) and non-linear/non-compensatory (NCMC) rules: countries that greatly improve or worsen their rank position

	Aggregation	ESI rank with LIN	rank with NCMC	Change in Rank
Improvement	Azerbaijan	99	61	*38*
	Spain	76	45	*31*
	Nigeria	98	69	*29*
	South Africa	93	68	*25*
	Burundi	130	107	*23*
Deterioration	Indonesia	75	114	*39*
	Armenia	44	79	*35*
	Ecuador	51	78	*27*
	Turkey	91	115	*24*
	Sri Lanka	79	101	*22*
Average change over 146 countries				*8*

As a main conclusion we can therefore corroborate that the overall results that the *five top ranking countries* in the Active Citizenship Composite Indicator are Sweden, Norway, Denmark, Austria and Belgium, and the *five lowest ranking countries* are Italy, Portugal, Greece, Hungary and Poland; the ranking is very robust whatever aggregation or rule is adopted.

It is necessary to verify whether the ranking is sensitive to changes in the weighting schemes. With this in mind, the next section is devoted to sensitivity analysis and will analyse the combinations of different aggregation rules, different weighting schemes, different normalisation techniques and problem structuring.

4.3 Sensitivity Analysis

To investigate the robustness of the ranking based on the composite indicator, the rankings based on several methods of weighting, structures and standardisation methods were compared.

Every aggregate measure or ranking system, including the Active Citizenship Composite Indicator, involves subjective judgments in the selection of indicators, the choice of aggregation model, and the weights applied to the indicators. Because the

quality of a ranking system depends on the soundness of its assumptions, good practice requires evaluating confidence in the system and assessing the uncertainties associated with its development process. To ensure the validity of the messages conveyed by this composite indicator, it is important that the sensitivity of the EU country rankings to the structure and aggregation approach be adequately studied.

By acknowledging a variety of methodological assumptions that are intrinsic to policy research, a "sensitivity analysis" can determine whether the main results change substantially when those assumptions are varied over a reasonable range of possibilities (Saisana et al., 2005; Saltelli et al., 2000). Using sensitivity analysis, we can study how variations in rankings derive from different sources of variation in the assumptions. Sensitivity analysis also demonstrates how each model/system depends upon the information that composes it. It is thus closely related to uncertainty analysis, which aims to quantify the overall uncertainty in a country's rank as a result of the uncertainties in the ranking system construction. A combination of uncertainty and sensitivity analyses can help to gauge the robustness of the composite indicator results, to increase its transparency, to identify the countries whose performance improves or deteriorates under certain assumptions, and to help frame the debate around the use of the Framework.

The validity of the Active Citizenship ranking is assessed by evaluating how sensitive it is to the assumptions that have been made about its structure and the aggregation of the 63 individual indicators. The sensitivity analysis is undertaken with respect to three main sources of uncertainty: (1) dimension structure, (2) weighting method - equal weighting, Factor Analysis, or Benefit of the Doubt, and (3) aggregation approach - non-linear/non-compensatory multi-criteria, or an additive aggregation. The Benefit of the Doubt (BoD) method is explained in Box 5.

For the sensitivity analysis of the Active Citizenship Composite Indicator we analysed 11 scenarios in total, as listed in Table 22. The first eight scenarios employ a linear aggregation, whilst a multi-criterion non-linear/non-compensatory approach is used in the scenarios numbered 9 to 11. The BoD weights can be used exclusively with the linear aggregation and not with the non-linear/non-compensatory aggregation. The dimension structure is preserved in all scenarios, except 1, 2, 7 and 9. Z-scores standardisation is used to normalise the data prior to the additive aggregation in Scenarios 1,3 and 5 and the MinMax normalisation is used in

Scenarios 2,4 and 6. No normalisation is needed in the case of either the Benefit of Doubt weighting approach or the non-compensatory multi-criteria (scenarios 4 to 8).

Box 5. The Benefit of the Doubt Method (BoD) for individual indicator weighting

The BoD approach is based on data envelopment analysis. The starting point in data envelopment analysis is the observation that there is usually no (expert) consensus on the weights used to aggregate the (possibly normalised) individual indicators. Moreover, any specific choice of a weighting vector is, by definition, imposed upon the evaluated country, which may not always be received positively. For example, some authors have argued that differential weighting may be desirable in composite indicators, e.g. because of different environments or political attitudes (Veenhoven, 1996) or because the very idea of imposing weights may be inconsistent with the subsidiarity principle (Cherchye, Moesen and Van Puyenbroeck, 2004). Basically, such worries are then overcome by rendering the weight selection problem endogenous for each observation. That is, the relative weight accorded to each sub-indicator is endogenously determined in this type of performance evaluation models, so as to reflect the associated relative performance for the country under evaluation. Hence, good relative performance in a particular dimension is seen as 'revealed evidence' of setting high national policy priority to that dimension, which explains the 'benefit-of-the-doubt'-terminology that has alternatively been used for this method. (Melyn & Moesen, 1991). Note also that the resulting index number is a gauge of relative performance: using its proper benefit-of-the-doubt weights, a country's sub-indicators are compared with those of the other countries in the sample. To construct "benefit-of-the-doubt" CIs, we consider a cross-section of *M* sub-indicators and *N* countries, with y_{mn} the value of sub-indicator *m* in country *n*. Each sub-indicator *m* has the following interpretation: if $y_{mn} > y_{mk}$ then country *n* performs better than country *k*. Our objective is to merge these individual sub-indicators into a single-valued CI, defined as the weighted average of the *m* sub-indicators; we use w_m to represent the weight of the *m*-th sub-indicator. As discussed above, we endogenously select those weights that maximize the CI value for the country under consideration; i.e., we apply benefit-of-the-doubt weighting in the absence of reliable information about the 'true' weights and we further apply some restrictions to the weights, so as to avoid extreme cases where a country omits several sub-indicators or places too much importance on few of them. This gives the following linear programming problem for each country *n*: $CI_n = \max_{w_m} \sum_{m=1}^{M} y_{mn} w_m$

Subject to

$$\sum_{m=1}^{M} y_{mn} w_m \leq 1 \qquad \forall n = 1,2,...,N \qquad \text{(}\textit{bounding constraint}\text{)}$$

$$w_m \geq 0 \qquad \forall m = 1,2,...,M \qquad \text{(}\textit{non-negativity constraint}\text{)}$$

$$L_m \leq \frac{y_{mn} w_m}{\sum_{m=1}^{M} y_{mn} wm} \leq U_m \qquad \text{(}\textit{pie share constraint}\text{)}$$

In this basic programming problem, we obtain $0 \leq CI_n \leq 1$ for each country *n*, with higher values indicating a better relative performance.

The two normalisation techniques tested are:

Standardisation (or Z-scores):

For each sub-indicator x_{mn}, the average across countries $\bar{x}_{mn}$ and the standard deviation across countries $\sigma_{x_{mn}}$ are calculated. The normalization formula is: $y_{mn} = \frac{x_{mn} - \bar{x}_{mn}}{\sigma_{x_{mn}}}$, so that all the y_{mn} have similar dispersion across countries.

This approach converts all indicators to a common scale with an average of zero and standard deviation of one, yet the actual minima and maxima of the standardized values across countries vary among the sub-indicators.

Min-max scaling:

Each sub-indicator x_{mn} is transformed linearly in $y_{mn} = \frac{x_{mn} - \min_n(x_{mn})}{\max_n(x_{mn}) - \min_n(x_{mn})}$ where $\min_n(x_{mn})$ and $\max_n(x_{mn})$ are the minimum and the maximum value of x_{mn} across all the countries *N*. In this way, the normalized indicators y_{mn} have values within [0, 1].

This approach increases the impact of indicators with small range of values to the overall composite indicator, which, depending on the case, could be a desirable or undesirable property.

Table 23: Methodological scenarios for the development of the Active Citizenship Composite Indicator (EW: Equal weights; FA: Factor Analysis; NCMC: Non-Compensatory Multi-criteria)

Scenario	Dimension Structure	Normalisation	Weighting	Aggregation
S1	Not Preserved	Standardisation	EW for all indicators	Additive
S2	Not Preserved	MinMax	EW for all indicators	Additive
S3	Preserved	Standardisation	EW for indicators within dimension	Additive
S4	Preserved	MinMax	EW for indicators within dimension	Additive
S5	Preserved	Standardisation	FA weights within dimension, EW for the dimensions	Additive
S6	Preserved	MinMax	FA weights within dimension, EW for the dimensions	Additive
S7	Not Preserved	None	BoD weights for all indicators	Additive
S8	Preserved	None	BoD weights within dimension, EW for the dimensions	Additive
S9	Not Preserved	None	EW for all indicators	NCMC
S10	Preserved	None	EW for indicators within dimension	NCMC
S11	Preserved	None	FA within dimension, EW for the dimensions	NCMC

Table 23 presents the overall rankings for all eleven scenarios. One notices that the overall ranking is not sensitive to any of the four major methodological choices made to develop the composite ranking. In the worst cases, the shift in rank is of two positions, mostly due to the aggregation method (non-linear/non-compensatory multi-criteria). This modest sensitivity is observed for Ireland, Luxembourg, Germany, United Kingdom, Poland and Hungary. Norway and Sweden alternatively occupy the top of the ranking. This outcome produces a high degree of confidence that the Active Citizenship Composite Indicator provides a solid framework for assessing relative performance between European countries in a robust way.

Table 23: Ranking in Active Citizenship Composite Indicator and shift in country rank for eight methodological scenarios (positive numbers indicate improvement in rank, and vice versa)

	Active Citizenship	S	S	S	S	S	S	S	S	S	S	S
Norway	1	-	0	-	0	-	0	-	-	-	-	-
Sweden	2	1	0	1	0	1	0	1	1	1	1	1
Denmark	3	0	0	0	0	-	-	0	0	0	0	0
Austria	4	0	0	0	0	1	1	0	0	0	0	0
Ireland	5	-	-	-	-	-	-	-	-	-	-	-
Belgium	6	1	1	1	1	1	1	1	1	1	1	1
Netherlands	7	1	1	-	0	0	0	1	-	0	-	-
Luxembourg	8	-	-	1	0	0	-	-	2	-	-	-
Germany	9	0	0	0	0	0	1	-	0	1	2	2
United Kingdom	10	2	2	0	0	0	0	2	-	1	-	-
Finland	11	0	0	0	0	0	0	0	1	-	1	1
France	12	0	0	0	0	0	0	0	0	1	0	0
Slovenia	13	0	0	0	0	0	0	0	0	0	0	-
Spain	14	0	0	0	0	0	0	0	0	0	0	1
Portugal	15	-	-	-	-	-	-	-	-	-	-	-
Italy	16	1	1	1	1	0	0	1	1	1	1	0
Poland	17	-	-	0	-	0	0	0	-	-	-	-
Greece	18	1	1	0	1	0	0	0	1	0	1	1
Hungary	19	0	0	0	0	0	0	0	0	2	1	1
Total shift		***1***	***1***	***8***	***6***	***6***	***6***	***1***	***1***	***1***	***1***	***1***

For completeness of the analysis, we study whether the relative performance of the countries within each dimension of Active Citizenship is affected by the method employed to aggregate the information. To this end, Table 24 presents the country rankings in each of the four dimensions of Active Citizenship for the proposed ranking and the shifts in rank under three scenarios, namely S2, S6 and S10. Again the rankings in the four dimensions are quite robust to the methods employed to construct/validate the dimensions of Active Citizenship. In most cases, the shift is of one or two positions, with a few exceptions regarding the Civil Society dimension, in which Finland would improve its rank by five positions when using a BoD weighting approach, whilst the Netherlands would lower its rank by five positions under the non-compensatory multi-criteria aggregation.

Table 24: Country rankings in each one of the four dimensions of the Active Citizenship Composite Indicator and shifts in rank under three distinct methodological scenarios. Countries are listed in alphabetical order

	Original ranking				Scenario 2				Scenario 6				Scenario10			
	Civil Society	Community	Values	Political Life	Civil Society	Community	Values	Political Life	Civil Society	Community	Values	Political Life	Civil Society	Community	Values	Political Life
Austria	5	9	9	1	0	0	0	0	0	0	0	0	-1	0	-2	0
Belgium	4	5	19	3	0	-1	0	0	0	-1	0	0	0	1	0	0
Denmark	3	7	8	5	0	0	2	0	0	0	0	0	1	0	3	0
Finland	12	13	4	11	1	0	0	0	0	0	1	0	0	0	-2	-2
France	9	12	16	16	0	2	0	0	1	2	1	0	2	2	0	0
Germany	8	8	10	7	0	0	0	0	1	0	0	0	3	0	2	1
Greece	17	17	17	10	0	-1	0	0	-1	-1	-1	0	-2	0	-1	1
Hungary	18	15	18	18	0	0	0	0	1	0	1	0	1	0	1	0
Ireland	10	6	7	8	-2	1	0	0	0	1	1	0	2	0	0	-2
Italy	15	18	12	14	0	1	0	0	0	1	-2	0	2	0	0	-1
Luxembourg	11	11	2	6	1	-1	0	0	0	-1	0	0	1	0	0	-2
Netherlands	6	2	11	9	0	-2	0	0	-3	-2	0	0	-5	-1	1	2
Norway	1	1	3	2	0	0	0	0	-1	0	-1	0	-2	0	0	-2
Poland	19	19	5	19	0	0	0	0	0	0	0	0	1	0	1	0
Portugal	16	16	6	17	0	0	-2	0	0	0	-1	0	0	0	-3	3
Slovenia	13	10	15	13	-1	-1	0	0	0	-1	-1	0	-2	-2	0	1
Spain	14	14	13	12	1	0	-1	0	0	0	1	0	0	0	0	1
Sweden	2	3	1	4	0	0	0	0	-1	0	0	0	1	1	0	2
United Kingdom	7	4	14	15	0	2	1	0	1	2	1	0	-2	-1	0	-2

5. Conclusions

The current European climate and the renewed Lisbon agenda have put social cohesion at the heart of the European policy agenda. Active Citizenship is an essential element of the strategy, focusing on values, representative democracy and civil society. But how can active citizenship be measured?

The theoretical framework used to construct an active citizenship composite index (ACCI) has been developed - in cooperation with the Council of Europe - by a network of European experts and presented at an international conference held in Ispra on September 2006. The ACCI covers 19 European Countries and is based on a list of 63 basic indicators. Data principally come from European Social Survey 2002. This is the first composite indicator to be created on active citizenship and should be considered as a first step towards establishing an operational model of active citizenship that could yield results for supporting the monitoring of this phenomenon.

The ACCI index shows a heterogeneous Europe in which Nordic countries lead and southern countries perform well in the dimensions of Values and Political Life but lag behind in Civil Society and Community Life. Among the Nordic countries the exception seems to be Finland, which ranks mid-table in all dimensions except Values. Among the western European countries high scores are recorded by Austria and the Benelux countries, although with different profiles: whereas the Netherlands and Luxembourg have consistent performances in all dimensions considered, Belgium compensates for low scores in the dimension of Values with an outstanding performance in Political Life. The complex reality of eastern European countries is reflected in the index, in which Poland is top performer only in the Values domain and Hungary lags behind in all four dimensions analysed. Nevertheless, Hungary displays encouragingly high scores in *national voting* and *non-organised help*.

The robustness of the Active Citizenship Composite Indicator was tested in different ways. In a first step the proposed theoretical structure for the different dimensions of Active Citizenship was checked by performing Factor Analyses on the available data from European Social Survey. In a following step, a sensitivity analysis was performed and a plurality of scenarios (all with their implications in terms of standardisation, weighting schema and alternative ways of composing the composite

indicator) were compared to the approach that was proposed and followed in this report.

Factor analyses within each of the dimensions corroborate the theoretical structure used. In other words, the statistical structure of the data corresponds to the theoretical structure. However at the aggregate level path analysis highlights the scarce relative contribution to the ACCI of the individual indicators in the community dimension. This finding underlines the need for further refinement of the domain definition.

The multivariate analysis corroborates the robustness of the index and the invariance of the rankings to changes in normalisation methods and in the weighting of individual indicators, sub-dimensions and dimensions. The use of non-compensatory aggregation methods further reinforce this message, given that rankings are almost independent of the aggregation method used. In the worst cases, in fact, the shift in rank is of two positions, mostly due to the aggregation method (non-linear/non-compensatory multi-criteria). This modest sensitivity is observed for Ireland, Luxembourg, Germany, United Kingdom, Poland and Hungary. The only notable exception regards the Civil Society dimension, in which Finland would improve its rank by five positions when using a *Benefit of the Doubt* weighting approach, whilst the Netherlands would lower its rank by five positions under the non-compensatory multi-criteria aggregation.

In order to better understand the phenomenon of active citizenship the relationship between the Active Citizenship Composite Indicator and other social and economic indicators was explored. We found high negative correlation with the Corruption Perceptions index, and high positive correlation with GDP per capita and the Human Development Index. A modest positive correlation is also found with the Social Cohesion Index (SCI) and the Global Gender Gap Index. The relationship with the ACCI and the five benchmarks on education and training (plus investment in education) decided by the Council (Education) 2003 is not conclusive. Rather it points to a need for further research on the topic.

Some caveats need to be considered. It should be noted that the results obtained depend on:

1. *Quality of the information available* (in this case many important variables, like *informal participation*, are poorly or not at all represented. Moreover

most of the data used are from a survey undertaken in 2002, meaning that the picture today might be different);

2. *Indicators chosen* (i.e. which representation of reality we are using. A set of indicators is not reality itself, but rather a descriptive model of reality. This is especially true in the case of active citizenship, which is an evolving concept. Some forms of active citizenship – for example the creation of websites, blogs, e-mailing, IT-relating interaction, etc. – were excluded from this analysis, although they might be very relevant, due to lack of comparable data);
3. *Direction of each indicator* (i.e. the bigger, the better or vice versa – this choice is not always obvious);
4. *Relative importance of these indicators* (in this case various sets of weights have been applied);
5. *Ranking method used* (in this case the linear aggregation rule and the non-compensatory multi-criterion algorithm).

Moreover, it is important to remember that there is no "optimal" level of active citizenship, and therefore benchmarks cannot be set. This limits the interpretation of our findings to the relative performance of countries, but even countries in the bottom part of the ranking might have satisfactory levels of AC in absolute terms.

Bearing all this in mind, the analysis still gestures towards a number of avenues for future research. The first relates to the behaviour of the domain Values with respect to the other domains. Whereas the dimensions of Civil Society, Community Life and Political Life move together, the dimension of Values seems to demonstrate different and autonomous behaviour, suggesting a gap between intentions and actions that deserves more analysis. The second avenue is related to the role of youth in determining active citizenship and thus the responsibility of education and training systems.

The index also highlights a multi-faceted relationship between indicators of prosperity and the perception of corruption. The lack of multi-annual data and the complex nature of co-evolving socio-economic systems does not allow for an easy determination of the arrow of causality. Yet this research seems to indicate that both growth and democratic accountability are associated with the practice of democratic

life. Furthermore we suspect the presence of some kind of Kuznets' curve for citizenship, implying a U-shaped relationship between citizenship and prosperity.

References and selected readings

Abs, H. J. and Veldhuis, R. (2006) Indicators on active citizenship – the social, cultural and economic domain. Ispra, Joint Research Centre. http://farmweb.jrc.cec.eu.int/CRELL/ActiveCitizenship/Conference/03_AbsVeldhuis.pdf

Allen, C. and Nielsen, J. (2002) Summary report on Islamophobia in the EU after 11 September 2001. Vienna, European Monitoring Centre on Racism and Xenophobia.

Arrow K.J., Raynaud H. (1986) Social choice and multicriterion decision-making. Cambridge, M.I.T. Press.

Bebbington, A., Carrol, T. (2000), *Induced Social Capital and Federations of the Rural Poor*, Social Capital Initiative Working Paper No. 19, The World Bank.

Beck, U. and Beck-Gernsheim, E. (2002) *Individualization: Institutionalized Individualism and its Social and Political Consequences.* London, Sage.

Blanch, D. (2005) Between the traditional and the post-modern: political disaffection and youth participation in Galicia. In Forbrig, J. (2005) *Revisiting youth political participation*. Strasbourg, Council of Europe.

Bourdieu, P. (1986). *The Forms of Capital*, in J. G. Richardson (a cura di), Handbook of Theory and Research for the Sociology of Education, New York: Greenwood Press

Boswell, N. (2006) *The Role of Civil Society in Securing Effective and Sustainable Reform*. EjournalismUSA. http://usinfo.state.gov/journals/itdhr/1206/ijde/boswell.htm

Canoy M. et. al. (2006) *Investing in Youth: from childhood to adulthood.* Brussels, BEPA.

Centre for Civil Society of the London School of Economics (2006) *What is civil society?* http://www.lse.ac.uk/collections/CCS/what_is_civil_society.htm

Coleman, J. (1988). *Social Capital in the Creation of Human Capital*. American Journal of Sociology. 94 Supplement:(S95-S-120).

Commission Staff Working Document (2006) *Community Lisbon Programme: Technical Implementation Report.* Brussels, European Commission.

Council Conclusions (2005) *on new indicators in education and training.* Brussels, Official Journal of the European Union C141

Council of Europe (2006) *Education for Democratic Citizenship and the Prevention of Terrorism*. Strasbourg, Council of Europe.

Cherchye, L., Moesen, W. and Van Puyenbroeck, T. (2004) *Legitimately diverse, yet comparable: on synthesising social inclusion performance in the EU*. Journal of Common Market Studies 42, 919–955.

Dalton, R. and Klingemann, H. D. (2005) *A New Handbook of Political Science*. Oxford, Oxford University Press.

Development Committee (2006) *Strengthening Bank Group Engagement on Governance and Anti-corruption.* Washington, World Bank. http://www.worldbank.org/html/extdr/comments/governancefeedback/gacpaper.pdf

De Weerd, M. et al. (2005). *Indicators and options for monitoring active citizenship and citizenship education.* Final report, Amsterdam, Regioplan Beleidsonderzoek.

Eurydice (2005) *Citizenship education at school in Europe*. Brussels, Eurydice.

Esty, D.C., Levy M., Srebotnjak, T., de Sherbinin A. (2005) *Environmental Sustainability Index: Benchmarking National Environmental Stewardship*. New Haven, Yale Center for Environmental Law and Policy.

Esty, D. C., Levy, M. A., Srebotnjak, T., de Sherbinin, A., Kim, C. H. and Anderson, B. (2006) *Pilot 2006 Environmental Performance Index.* New Haven, Yale Center for Environmental Law & Policy.

Green, A., Preston, J., & Sabates, R. (2003) *Education, Equity and Social Cohesion: a Distributional Model*. London: Centre for research on the wider benefits of Learning. http://www.learningbenefits.net/Publications/ResReps/ResRep7.pdf

Grootaert Ch. and van Bastelaer Th. (2001), *Social Capital: From Definition to Measurement*, in Grootaert Ch. and van Bastelaer (Eds.) *Understanding and Measuring Social Capital. A Multidisciplinary Tool for Practitioners*, Washington D.C., The World Bank.

Habermas, J. (1994) *Three Normative Models of Democracy*. Constellations vol. 1 (1994), pp.1-10

Hausmann R., Tyson L.D., Zahidi S. (2006) *The Global Gender Gap Report 2006.* World Economic Forum.

Hoskins, B. (2006) *A framework for the creation of indicators on active citizenship and education and training for active citizenship.* Ispra, Joint Research Centre http://farmweb.jrc.cec.eu.int/CRELL/ActiveCitizenship/Conference/01_Hoskins%20_framework_final.pdf

Kaufman, L. and Rousseeuw, P. J. (1990). *Finding Groups in Data: An Introduction to Cluster Analysis.* Wiley-Interscience.

Kim, J. e Mueller, C.W. (1978). *Introduction to factor analysis: what it is and how to do it.* Beverly Hills, Sage.

Kim, J. e Mueller, C.W. (1978b). *Factor analysis: statistical methods and practical issues*. Beverly Hills, Sage.

Marshall, T., H. (1950) *Citizenship and Social Class.* Cambridge, Cambridge University Press.

Melyn, W. and Moesen, W. (1991) *Towards a synthetic indicator of macroeconomic performance: Unequal weighting when limited information is available*. Public Economics Research paper 17, CES, KU Leuven.

Munda G. (1995), *Multicriteria evaluation in a fuzzy environment.* Physica-Verlag, Contributions to Economics Series, Heidelberg.

Munda G., Nardo M. (2005) *Constructing consistent composite indicators: the issue of weights*. EUR 21834 EN, Ispra, Joint Research Centre.

Munda G., Nardo M. (2007) *Non-compensatory/non-linear composite indicators for ranking countries: a defensible setting*. Forthcoming in Applied Economics.

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S. (JRC) & Hoffman, A., Giovannini, E. (OECD) (2005), *Handbook on Constructing Composite Indicators: Methodology and User Guide*, Paris, OECD Statistics Working Paper.

North, D. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press.

Ogris, G. and Westphal, S. (2005) *Political Participation of Young People in Europe – Development of Indicators for Comparative Research in the European Union (EUYOUPART).* Vienna, Institute for Social Research and Analysis.

Ogris, G. and Westphal, S. (2006) *Indicators on active citizenship – the political domain*, Ispra, European Commission.
http://farmweb.jrc.cec.eu.int/CRELL/ActiveCitizenship/Conference/02_SORA.pdf

Pleyers, G. (2005), *Young people and alter-globalisation: from disillusionment to a new culture of political participation.* In Forbrig, J. (2005) *Revisiting youth political participation*. Strasbourg, Council of Europe.

Portes, A. (1998), *Social capital: its origins and applications in modern sociology*, Annual Review of Sociology 24: 1-24.

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

Putnam, R.D., Leonardi, R., Nannetti, R.Y. (1993) *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton University Press, Princeton, trad. it. La tradizione civica nelle regioni italiane, Mondadori, Milano.

Saisana M., Tarantola S., Saltelli A. (2005) *Uncertainty and sensitivity techniques as tools for the analysis and validation of composite indicators,* Journal of the Royal Statistical Society A, 168(2), 307-323.

Saltelli A., Chan K., Scott M. (2000) *Sensitivity Analysis.* John Wiley & Sons Ltd, ISBN: 0471998923

Sinnott, R. (2005) Tackling the problem of voter abstention – the facilitation/mobilisation framework and some empirical evidence. In *Report of Second European Conference of Electoral Management Bodies*. Strasbourg, European Commission for Democracy through Law (Venice Commission).

Stevens, J. (1986) *Applied multivariate Statistics for the social sciences*. Hillsdale, NJ - Lawrence Erlbaum Associates.

Tocqueville, A. (1835), *De la démocratie en Amérique,* Paris.

Transparency International (2006*) Corruption Perceptions Index.* Berlin, Germany.

Tryon, R. C. (1939) *Cluster Analysis*. Edwards Brothers.

UNDP (2004). *Human Development report 2004*. Retrieved from: http://www.undp.org.in/hdr2004/HDR2004_complt.pdf

Veldhuis, R. (1997) *Education for Democratic Citizenship: dimensions of citizenship, core competences, variables and international activities*. Strasbourg, Council of Europe.

Veenhoven, R. (1996) *Happy Life Expectancy: A comprehensive measure of quality-of life in nations*. Social Indicators Research 39, 1–58.

Appendix 1

Table A1: List of survey questions used for baseline indicators

Code	Question	Equal Weights	PC weights	Source
S1	Working in an organisation or association	0.01	0.038	ESS1
S2	Signing a petition	0.01	0.058	ESS1
S3	Taking part in lawful demonstrations	0.01	0.043	ESS1
S4	Boycotting products	0.01	0.053	ESS1
S5	Ethical consumption	0.01	0.049	ESS1
S6	HR organisations – membership	0.016	0.034	ESS1
S7	HR organisations – participation	0.016	0.045	ESS1
S8	HR organisations – donating money	0.016	0.075	ESS1
S9	HR organisations – Voluntary Work	0.016	0.054	ESS1
S10	environmental organisations – membership	0.016	0.079	ESS1
S11	environmental organisations – participation	0.016	0.03	ESS1
S12	environmental organisations – donating money	0.016	0.071	ESS1
S13	environmental organisations – Voluntary Work	0.016	0.069	ESS1
S14	Trade Union organisations – membership	0.016	0.073	ESS1
S15	Trade Union organisations – participation	0.016	0.041	ESS1
S16	Trade Union organisations – donating money	0.016	0.072	ESS1
S17	Trade Union organisations – Voluntary Work	0.016	0.059	ESS1
S18	Contacted a politician	0.01	0.058	ESS1
S19	Unorganized Help in the community	0.036	0.013	ESS1
S20	Religious organisations – membership	0.009	0.035	ESS1
S21	Religious organisations – participation	0.009	0.051	ESS1
S22	Religious organisations – donating money	0.009	0.049	ESS1
S23	Religious organisations – voluntary work	0.009	0.044	ESS1
S24	Sports organisations – membership	0.009	0.036	ESS1
S25	Sports organisations – participation	0.009	0.047	ESS1
S26	Sports organisations – donating money	0.009	0.033	ESS1
S27	Sports organisations – voluntary work	0.009	0.044	ESS1
S28	Culture and hobbies organisations – membership	0.009	0.036	ESS1
S29	Culture and hobbies organisations – participation	0.009	0.042	ESS1
S30	Culture and hobbies organisations – donating money	0.009	0.038	ESS1
S31	Culture and hobbies organisations – voluntary work	0.009	0.047	ESS1
S32	Business organisations – membership	0.009	0.035	ESS1
S33	Business organisations – participation	0.009	0.047	ESS1
S34	Business organisations – donating money	0.009	0.039	ESS1
S35	Business organisations – voluntary work	0.009	0.038	ESS1
S36	Teacher/Parents organisations – membership	0.009	0.035	ESS1
S37	Teacher/Parents organisations – participation	0.009	0.045	ESS1
S38	Teacher/Parents organisations – donating money	0.009	0.033	ESS1
S39	Teacher/Parents organisations – voluntary work	0.009	0.046	ESS1
S40	Social organisations – membership	0.009	0.036	ESS1
S41	Social organisations – participation	0.009	0.048	ESS1
S42	Social organisations – donating money	0.009	0.038	ESS1
S43	Social organisations – voluntary work	0.009	0.045	ESS1
S44	Immigrants should have same rights	0.027	0.049	ESS1
S45	Law against discrimination in the work place	0.027	0,096	ESS1
S46	Law against racial hatred	0.027	0,092	ESS1
S47	Allow immigrants of different race group from majority	0.027	0.09	ESS1
S48	Cultural life undetermined/un-enriched by immigrants	0.027	0,075	ESS1

S49	*Immigrants make country worse/better place*	***0.027***	***0,079***	*ESS1*
S50	*How important for a citizen to vote*	***0.017***	***0.085***	*ESS1*
S51	*How important for a citizen to obey laws*	***0.017***	***0.059***	*ESS1*
S52	*How important for a citizen to develop an independent opinion*	***0.017***	***0.051***	*ESS1*
S53	*How important for a citizen to be active in a voluntary org.*	***0.017***	***0.081***	*ESS1*
S54	*How important for a citizen to be active in politics*	***0.017***	***0.082***	*ESS1*
P1	*Political parties – membership*	***0.028***	***0.028***	*ESS1*
P2	*Political parties – participation*	***0.028***	***0.028***	*ESS1*
P3	*Political parties – donating money*	***0.028***	***0.028***	*ESS1*
P4	*Political parties – voluntary work*	***0.028***	***0.028***	*ESS1*
P5	*Worked in political party/action group last 12 months*	***0.028***	***0.028***	*ESS1*
P6	*Donated money to political organisation/action group last 12 months*	***0.028***	***0.028***	*ESS1*
P7	*European Parliament - voting turnout*	***0.028***	***0.028***	*Eurostat*
P8	*National Parliament - voting turnout*	***0.028***	***0.028***	*Eurostat*
P9	*Women's participation in national parliament*	***0.028***	***0.028***	*Inter-Parliament Union*

Appendix 2

Civil society

Table A2: Variance Explained (Civil Society dimension)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.119	17.330	17.330	3.119	17.330	17.330	2.147	11.928	11.928
2	1.618	8.987	26.317	1.618	8.987	26.317	1.756	9.753	21.682
3	1.445	8.025	34.342	1.445	8.025	34.342	1.673	9.296	30.978
4	1.271	7.062	41.404	1.271	7.062	41.404	1.622	9.012	39.990
5	1.174	6.525	47.929	1.174	6.525	47.929	1.429	7.939	47.929
6	.976	5.422	53.350						
7	.922	5.123	58.474						
8	.886	4.924	63.398						
9	.835	4.641	68.039						
10	.769	4.274	72.313						
11	.736	4.087	76.400						
12	.693	3.849	80.249						
13	.677	3.763	84.013						
14	.656	3.644	87.657						
15	.621	3.453	91.109						
16	.559	3.105	94.214						
17	.537	2.983	97.197						
18	.505	2.803	100.000						

Extraction Method: Principal Component Analysis.

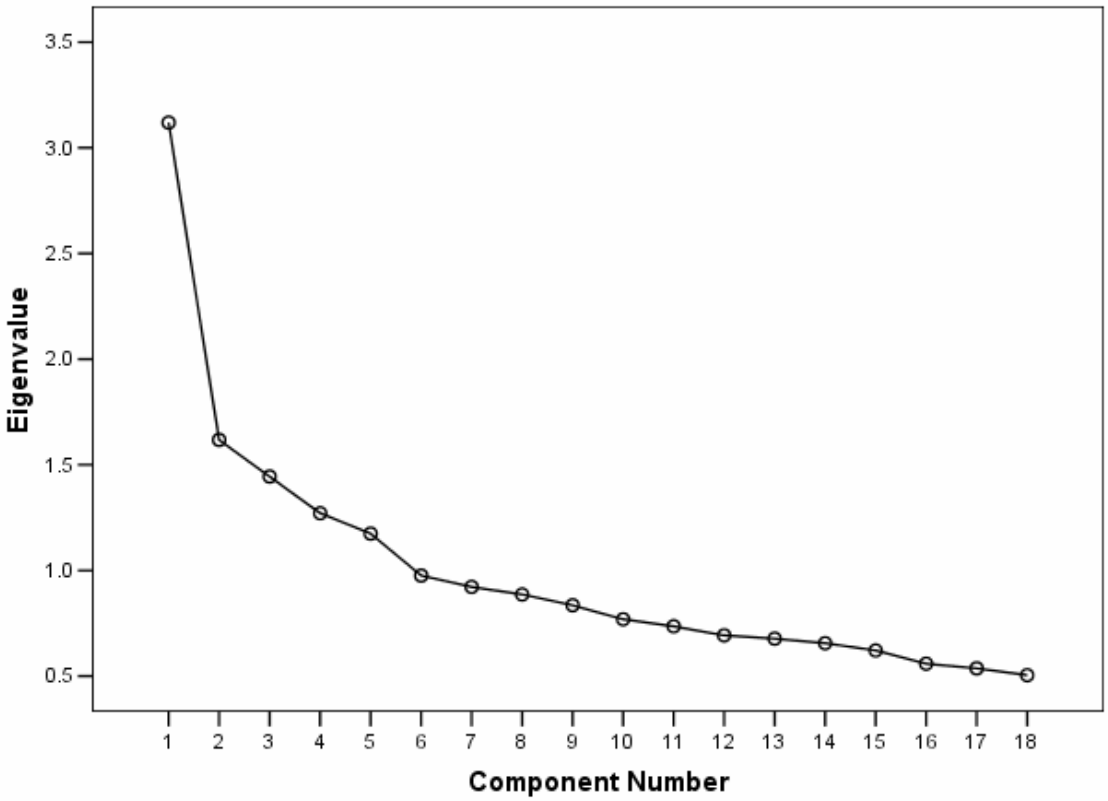

Figure A1: Scree plot (Civil Society dimension)

Community

Table A3: Variance Explained (community minded action)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.854	15.418	15.418	3.854	15.418	15.418	2.227	8.907	8.907
2	1.981	7.923	23.340	1.981	7.923	23.340	2.076	8.304	17.211
3	1.896	7.584	30.924	1.896	7.584	30.924	2.061	8.245	25.456
4	1.653	6.613	37.537	1.653	6.613	37.537	2.006	8.026	33.482
5	1.620	6.481	44.018	1.620	6.481	44.018	1.986	7.946	41.427
6	1.413	5.652	49.670	1.413	5.652	49.670	1.973	7.893	49.321
7	1.126	4.504	54.174	1.126	4.504	54.174	1.213	4.854	54.174
8	.975	3.900	58.074						
9	.936	3.742	61.816						
10	.808	3.231	65.048						
11	.730	2.921	67.968						
12	.703	2.813	70.782						
13	.683	2.731	73.513						
14	.648	2.594	76.106						
15	.648	2.592	78.699						
16	.628	2.512	81.210						
17	.588	2.352	83.562						
18	.569	2.275	85.837						
19	.564	2.254	88.091						
20	.545	2.179	90.270						
21	.524	2.096	92.366						
22	.496	1.984	94.350						
23	.490	1.960	96.310						
24	.473	1.894	98.204						
25	.449	1.796	100.000						

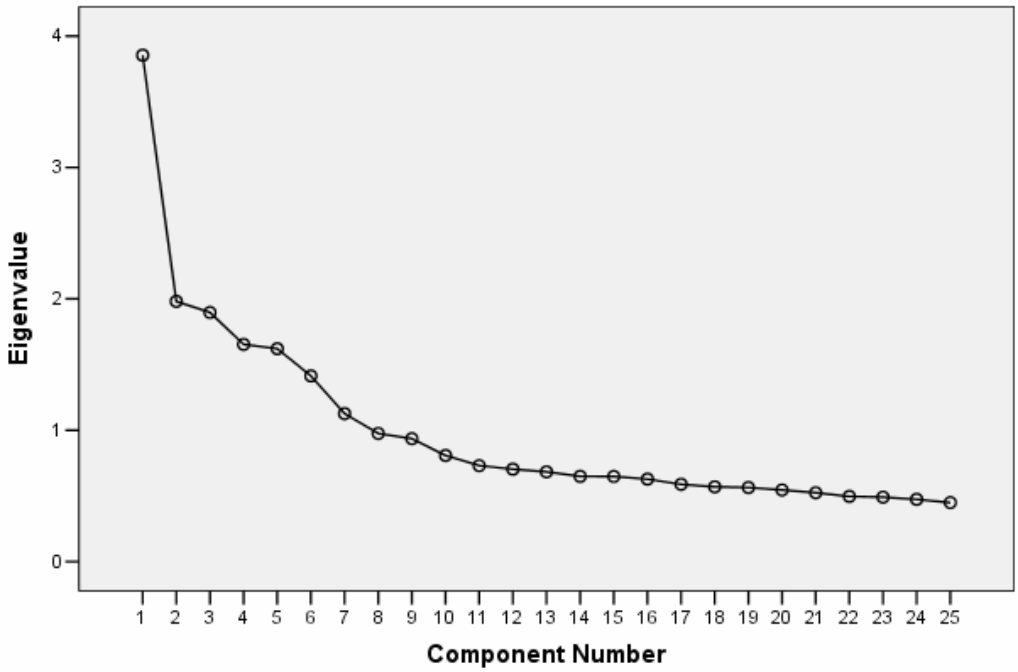

Figure A2: Scree plot (Community dimension)

Values

Table A4: Total Variance Explained (Values, 4 components)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.624	23.856	23.856	2.624	23.856	23.856	2.214	20.127	20.127
2	2.007	18.242	42.097	2.007	18.242	42.097	1.717	15.609	35.737
3	1.449	13.171	55.269	1.449	13.171	55.269	1.630	14.822	50.558
4	1.035	9.412	64.681	1.035	9.412	64.681	1.553	14.122	64.681
5	.814	7.401	72.082						
6	.739	6.719	78.800						
7	.624	5.672	84.472						
8	.608	5.526	89.998						
9	.443	4.023	94.021						
10	.384	3.492	97.513						
11	.274	2.487	100.000						

Extraction Method: Principal Component Analysis.

Table A5: Total variance explain (values, 3 components)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.624	23.856	23.856	2.624	23.856	23.856	2.222	20.204	20.204
2	2.007	18.242	42.097	2.007	18.242	42.097	2.132	19.379	39.583
3	1.449	13.171	55.269	1.449	13.171	55.269	1.725	15.686	55.269
4	1.035	9.412	64.681						
5	.814	7.401	72.082						
6	.739	6.719	78.800						
7	.624	5.672	84.472						
8	.608	5.526	89.998						
9	.443	4.023	94.021						
10	.384	3.492	97.513						
11	.274	2.487	100.000						

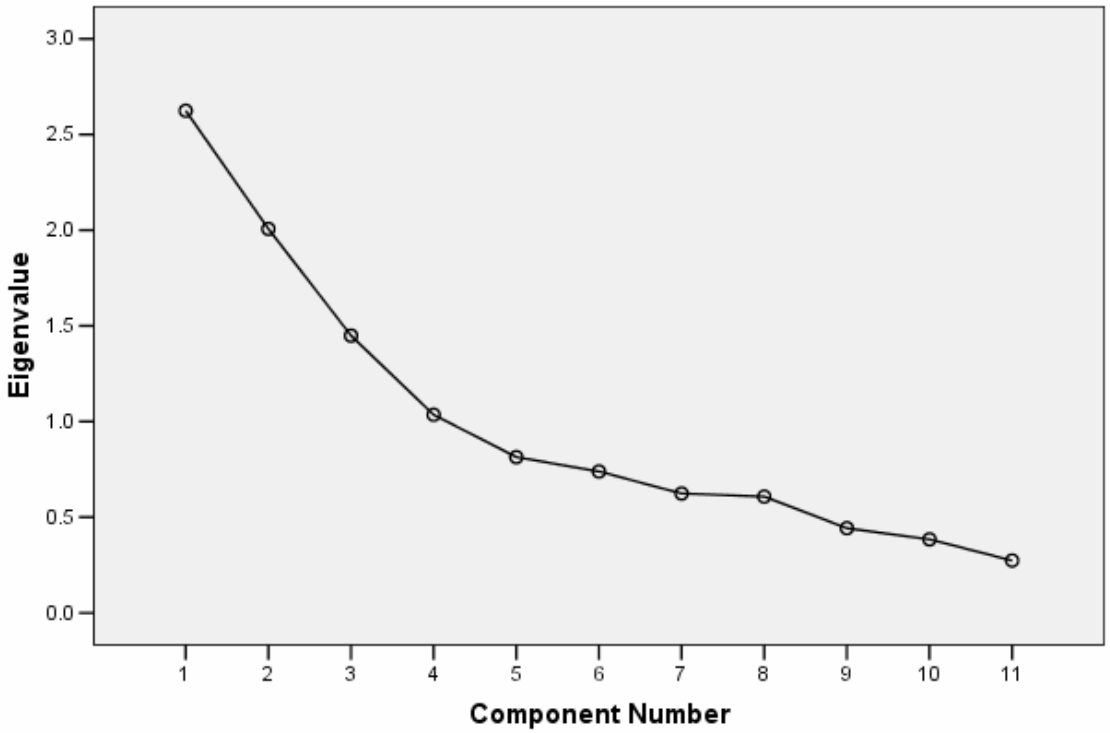

Figure A3: Scree plot of Eigenvalues

European Commission

EUR 22530 EN – DG Joint Research Centre, Institute for the Protection and Security of the Citizen

Title: Measuring Active Citizenship in Europe;
Authors: Bryony Hoskins, Jochen Jesinghaus, Massimiliano Mascherini, Giuseppe Munda, Michela Nardo, Michaela Saisana, Daniel Van Nijlen, Daniele Vidoni, Ernesto Villalba
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2006 – 74 pp. – 21 x 29.70 cm
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ISBN: 92-79-03738-2

Abstract:

This report presents the definition and framework for developing composite indicators of active citizenship, the process of building a composite indicator and the results obtained from the indicators in terms of European cross-country comparisons. The framework and indicators used in this report are based on recommendations emerging from the research project on "Active Citizenship for Democracy" coordinated by the Centre for Research on Lifelong Learning (CRELL) of the European Commission.

The Active Citizenship Composite Indicator (ACCI) covers 19 European countries and is based on a list of 63 basic indicators for which the data has been principally drawn from the European Social Survey of 2002. The ACCI shows a heterogeneous Europe where Nordic countries lead and southern European countries perform well in Values and Political Life but lag behind in Civil Society and Community Life dimensions. Explanations for these results are discussed in the report.

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