## Appendix 1

Wording of the Eurobarometer items measuring EU support and available at least four times since 1973 (list of data points available for each items as supplementary material)

- In general, are you for or against efforts being made to unify Western Europe? (If for: are you very much for this, or only to some extent?/If against: are you only to some extent against or very much against?+DK, NA)
- Generally speaking, do you think that (country's) membership of the European Community [European Union after 1993] (common market) is a good thing, a bad thing, or neither good nor bad? (0: DK, NA; 1: Good thing; 2: Bad thing; 3: Neither good nor bad)
- If you were to be told tomorrow that the European Community (Common Market) had been scrapped, would you be very sorry about it, indifferent about it, or relieved? (1: very sorry, 2: indifferent incl. DK and NA; 2: relieved)
- Personally, would you say that the single European Market which will come about by 1992 makes you feel very hopeful, rather hopeful, rather fearful or very fearful? (0: DK, NA; 1: very hopeful; 2: rather hopeful; 3: rather fearful; 4: very fearful)/After 1992: Personally, would you say that the Single European Market which came about at the beginning of 1993 makes you feel very hopeful, rather hopeful, rather fearful?
- Would you say that you are very optimistic, fairly optimistic, fairly pessimistic or very pessimistic about the future of the European Union? (1: very optimistic; 2: Fairly optimistic; 3: fairly pessimistic; 4: very pessimistic; 5: DK)
- Taking everything into consideration, would you say that (our country) has on balance benefited or not from being member of the European Community/European Union? (0: DK; 1: Benefited; 2: Not benefited)
- In general, does the European Union conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image? (0: NA; 1: Very positive; 2: Fairly positive; 3: Neutral; 4: Fairly negative; 5: Very negative; 6: DK or no opinion spontaneous)
- Direction: At the present time, would you say that, in general, things are going in the right direction or in the wrong direction, in the European Union?
- On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the way democracy works in (your country)? Would you say you are ...? How about the way democracy works in the European Union?
- I would like to ask you a question about how much trust you have in certain institutions. For each of the following institutions, please tell me if you tend to trust it or tend not to trust it? The European Union.
- Has what you read or heard given you a generally favorable or unfavorable impression of the European Parliament?
- Has what you read or heard given you a generally favorable or unfavorable impression of the European Commission?
- For each of the following statements, please tell me to what extent it corresponds or not to your own opinion: you feel you are a citizen of the EU (0: DK, NA; 1: Yes, definitively; 2: Yes to some extent; 3: No, not really; 4: No, definitively not)
- People may feel different degrees of attachment to their town or village, to their region, to their country or to Europe. Please tell me how attached you feel to the European Union (0: DK, NA; 1: Very attached; 2: Fairly attached; 3: Not very attached; 4: Not at all attached)
- Do you ever think of yourself as not only (nationality), but also European? Does this happen often, sometimes or never?
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Defence
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Security and defence
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Co-operation with developing countries, third world
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Humanitarian aid
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Foreign policy toward countries outside the European community
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Information about the EU, its policies and institutions

- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Currency
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Rates of VAT
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Industrial policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Dealing with unemployment
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against unemployment
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Economic policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Consumer protection/consumer policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Workers' rights vis-à-vis their employers
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Participation of workers' representatives on company boards
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Health and safety of workers
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Supporting regions which are experiencing difficulties
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Agriculture and fisheries/fishing policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Competition policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Fighting inflation
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Taxation
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Health and social welfare
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Health
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Social welfare
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Pensions
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against poverty/social exclusion
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Education
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Basic rules for broadcasting and press
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Scientific and technological research
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Cultural policy

- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Immigration policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Rules for political asylum
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Accepting refugees
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Protection of computer-based information on individuals
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against drugs
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against organized crime
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Police
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Justice
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Juvenile crime prevention
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Urban crime prevention
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against the trade in, and exploitation of, human beings
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? The fight against international terrorism
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Transports
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Energy policy
- For each of the following areas, do you think that decisions should be made by the (NATIONALITY) government, or made jointly within the European Union? Protection of the environment
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? The economic situation
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Rising prices/inflation
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Fighting unemployment
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Taxation
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? The educational system
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Fighting terrorism
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Public transport
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Protecting the environment
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Health care system
- And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Immigration

And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Housing

And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Foreign Affairs

And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Fighting crime

And for each of the following issues in (OUR COUNTRY), do you think that the European Union plays a positive role, a negative role or neither positive nor negative role? Pensions

## Appendix 2

## The dyad-ratio algorithm

The dyad-ratio algorithm helps estimate one (or several) latent dimensions that account for variance over time throughout all public opinion indicators available on a given subject. This is equivalent to performing a principal component analysis, but based on data with numerous missing values: if we had information for each point in time and each item, we could run a principal component analysis, but as we lack, for any point in time, the value of our ratio of support for many items, this is not possible.

The dyad-ratio algorithm uses an iterative approach to solve this problem. If we arbitrarily attribute the value  $\theta_0 = 1.0$  to our latent dimension for the first point in time (t<sub>0</sub>), we can use the series for which data is available to estimate how  $\theta_0$  varies over time (from t<sub>0</sub> to t<sub>1</sub>, from t<sub>1</sub> to t<sub>2</sub>, and so on, as long as data is available for series measured at t<sub>0</sub>).

The same procedure can be replicated starting from the second point in time,  $t_2$ . The value attributed to our latent dimension for  $t_1$  is the one estimated in the previous step, based on the variations from  $t_0$  to  $t_1$ ). Following the same approach, it is possible to estimate  $\theta$  iteratively for each point in time: 'by projecting  $\theta_1$  forward in time, estimations for the periods 3 to T become comparable to what they would have been if the indicators available only from period 2 would have been available already in period 1'.<sup>1</sup> The dimension can then be estimated by computing the mean of all these estimations.

As noted by Stimson, Thiébaut and Tiberj, this procedure gives more weight to the indicators available for the first points in time.<sup>2</sup> The questions available at  $t_0$  influence all the subsequent estimations, while those present in the penultimate point in time influence only one estimation. In order to avoid bias linked to this implication of the iterative approach, the dyad-ratio algorithm replicates the procedure just described, but in the reverse direction. The new estimations obtained are comparable to the previous ones, but not identical. A better estimation of our latent variable, weighting every indicator identically, can be calculated by computing the mean of the two series of estimations. The correlation between the series estimated by working *forward* or *backward* becomes a measure of reliability.

<sup>&</sup>lt;sup>1</sup> Stimson, Thiébaut, and Tiberj 2011, 925.

<sup>&</sup>lt;sup>2</sup> Stimson, Thiébaut, and Tiberj 2011, 925.