UNIVERSITAT POMPEU FABRA

RECSM

Research and Expertise Centre for Survey Methodology

# RECSM Working Paper Number 17

2010

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# Can the left-right scale travel?
# A note on the comparability of its use in Europe and across generations in East and West Germany

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**27 September 2010**

Abstract

Subjective variables such as opinions, attitudes or preferences cannot be measured directly. Researchers have to rely on the answers people give in surveys, and whenever those answers shall be compared it is required that people answer these questions in the same way. Only then a concept can be used in different contexts. In this paper we study the use of the left-right response scale in European countries and among age cohorts in East and West Germany. Following the three steps of invariance testing, configural, metric and scalar invariance, we find that the left-right response scale is indeed used in the same way in different age cohort in East and West Germany but not overall in 25 selected European countries. In order to estimate how serious these differences are we compare observed and latent means, and the effect of the observed variable "attitude towards government's intervention in the economy" on the observed variable "left-right self-placement" with the effect between these variables after correcting for scale difference. It was found that countries' means can be compared but that the relationship with other variables might not be comparable among Finland, France and Germany and the remaining countries.

## 1 Introduction

Ever since Downs (1957) ideology is seen as a key-factor influencing political behaviour, and in European democracies the most common used ideological concept is the left-right dimension which describes a one-dimensional political spectrum. It shall help people to orientate themselves in the world of politics, has a communication function for the political system (Knight 1985; Fuchs and Klingemann 1989; Popkin 1991; Hinich and Munger 1994), and was found to be a major predictor of voting decisions (Franklin, Mackie et al. 1992; Gunther and Montero 2001 ; Eijk, Schmitt et al. 2005). Therefore it is a crucial concept in political science but at the same time it remains a black box. Scholars find that the concept varies over time (Inglehart 1985), across countries (Gunther and Montero 2001 ; Eijk, Schmitt et al. 2005; Klingemann, Volkens et al. 2006) and among individuals (Fuchs and Klingemann 1989; Weber and Saris 2010). However, so far the literature did not contest the comparability of the left-right response scale. Thereby, the distinction between individuals' left-right orientation (opinion) and the position individuals take when they are asked to place themselves on the left-right scale (response) should be emphasised[1]. In this study the focus is on the response. I attempt to fill the gap in the literature by assessing the comparability of the measurement which is also known as functional equivalence or invariance of measures. Thereby I follow Wu et al.'s (2007) advice that "unless evidence is demonstrated, construct comparability should never be naively assumed" because observed differences might reflect systematic biases of response or different understanding of the concept across countries or individuals rather than substantive differences, or the other way around observed similarities might hide substantive differences (Steenkamp and Baumgartner 1998).

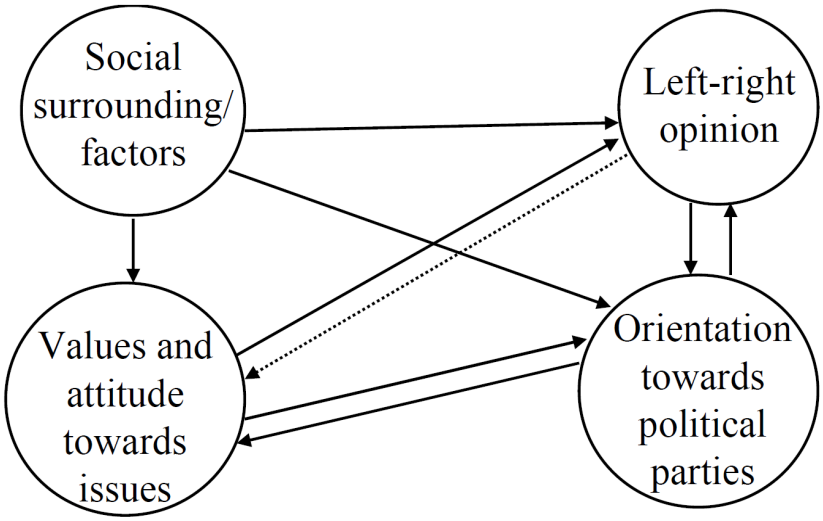
Most frequently two types of comparison are made: comparison of means and comparison of relationships with other variables (Saris and Gallhofer 2007: 329). In order to test the comparability of the measurement of individuals' left-right opinion multigroup confirmatory factor analyses (MGCFA) (Jöreskog and Sörbom 1993; Billiet 2002) is employed, following three steps of invariance testing, configural, metric and scalar invariance (Meredith 1993). The paper proceeds as follows: in the first part the particularity of the left-right concept is described and I argue for reasons of diverse use of the left-right response scale. Afterwards the method and data are explained and finally the results and conclusions are presented.

[1] People's left-right orientation will be called left-right opinion in order to highlight the distinction to the reponse they give when asked to place themselves on the left-right scale.

## 2 The left-right scale – a challenged concept

Ever since Inglehart and Klingemann's seminal article (1976) there has been a consensus that there are three major components of the left-right concept: the social, value and partisan components. Freire constraints this consistency only to Western Europe (2008). The social component refers to individuals' location in a social surrounding which corresponds with their social identity and their left-right opinion (2008: 5). The value component refers to the link of values and attitudes towards certain issues and the left-right self-placement. The partisan component refers to individuals' ideological orientation towards political parties (Fuchs and Klingemann 1989; Huber 1989). I followed the literature by calling these variable sets "components", however, this term is rather misleading as the term "component" implies being a constituent part of the left-right ideology but those elements are in relation with it. In other words, the three variable sets are not parts of individuals' left-right opinion but are separate variables related with the left-right opinion (Figure 1).

**Figure 1: Elements which are in relation with the left-right concept**




Whenever scholars study the left-right opinion or its relationship with the three elements or other variables they assume that individuals' use the left-right response scale as offered in surveys in the same way, this means that persons with the same left-right position will give the same answer to the question. The same use of the left-right scale is an essential precondition for any comparison among individuals or countries, and for any conclusion drawn including this concept. As this precondition is so crucial, this study intents to test whether this assumption is actually met.

## 3 The use of the left-right scale

The left-right self-identification, like other subjective variables such as opinions, attitudes or preferences cannot be measured directly. Researchers have to rely on the answers people give in surveys. To measure individuals' left-right opinion they ask:

*"In politics people sometimes talk about "left" and "right". Using this card, where would you place yourself on this scale, where 0 (1) means left and 10 means right?"*

The respondent is handed a card with numbers from one to ten, e.g. in the Eurobarometer, or from zero to ten, e.g. in the European Social Survey (ESS), whereby zero/one is left and ten is right. I will make a distinction between the internal left-right opinion of a person and his/her response to the question presented above. The relationship between these two variables is called the "response function". The fundamental assumption is that the response function is the same for all respondents (Dijkstra and Zouwen 1982). This can be formulated, assuming a linear function, as:

$$R = \tau + \lambda O + \zeta \qquad (1)$$

R = response, $\tau$ = intercept, $\lambda$ = loading, O = opinion, $\zeta$ = error term

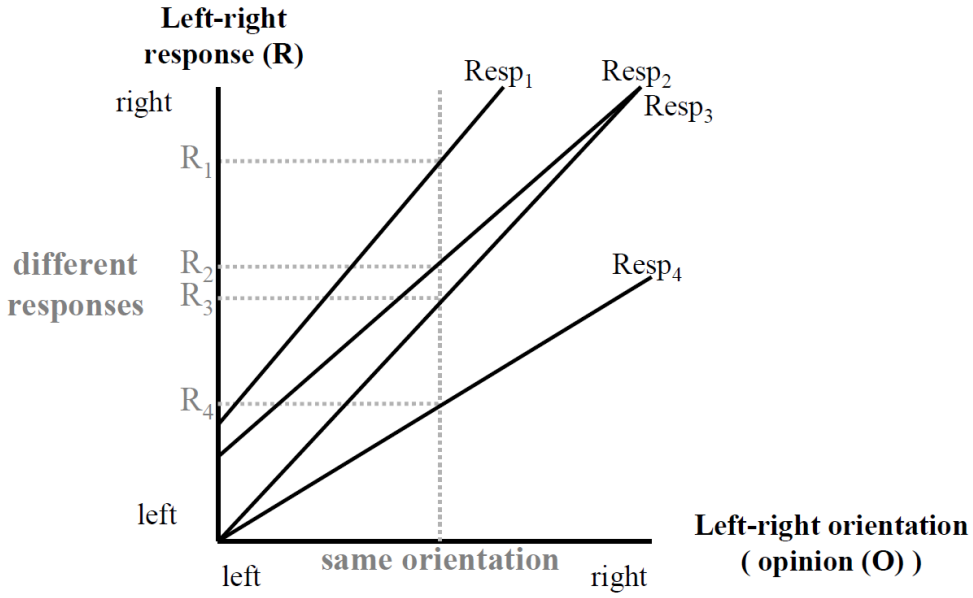
If the assumption is true, then $\tau_1 = \tau_2 = \ldots = \tau_i$ and $\lambda_1 = \lambda_2 = \ldots = \lambda_i$, and it means that everyone understands and uses the left-right scale in the same way. While this assumption has been formulated for individual respondents, the comparison of the left-right scale across countries requires that the response scale is the same across countries. The leads to the following null hypothesis of this study:

*Hypothesis 0: The same response function is used by the respondents in all countries.*

This null hypothesis is not necessary true. For instance, Saris (1988) has demonstrated in several studies that people can use very different response functions if the scale is not fixed. Figure 2 illustrates that people can express their opinion in different ways. If we rely only on the responses, it appears as if these respondents place themselves differently on the left-right response scale. But once the response function of each person is taken into account, it appears that they have the same left-right opinion. The response function of Respondent 1 has the highest intercept and the steepest slope, meanwhile Respondent 4's response function has a low intercept and the gentlest slope. The response function of Respondent 3 has the same intercept as Respondent 1's but a steeper slope and Respondent 2's has a quite high intercept but its slope is more gentle than the one of Respondent 3, thus the responses of Respondent 2 and 3 are very close. Thus if variation in

the response functions exist and only the responses are available, conclusions about respondents' opinion cannot be made.

**Figure 2: Relationship between opinion and response given variation in response style**




This phenomenon is not impossible because one can imagine that a person whose opinion is "right" will provide a response 10 on the question mentioned above but another person with the same opinion could think that the scale goes from extreme left to extreme right and so, even though the labels are left and right, answer by giving a 9 or a 8. It will be clear that these people use the response scale in a different way. Besides that a person whose opinion is "extreme right" can think that he has no other choice but to give a 10. At the left side of the scale the same can occur, of course. This suggests that the response scale can be used by different people in different ways and possibly in different countries in different ways. This leads to the first alternative hypothesis that:

*Hypothesis H1:* *People in the different countries answer differently on a response scale labelled with left/right.*

In order to prevent this problem it is necessary to fix the relation between the subjective opinion scale and the response scale for all respondents in the same way using what Saris and de Rooij (1988) call "fixed references points". The addition of the term "extreme" will fix this relation for the left-right scale as there is no doubt that the most leftist (rightist) position on the scale is the extreme left (right) category. So the opinion scale of all respondents and the response scale are equally starting from "extreme left" and ending

with “extreme right” which describes this political dimension definitively. Respondents may adjust their answer given the new response scale with fixed reference points and thus make a distinction between the left-right and extreme left-right response scale. I will come back to this issue in the discussion of the research design.

Besides the variation of response functions, people may also use the left-right response scale differently due to the substantive reason that they have distinct understandings of the left-right dimension. Scholars acknowledge that survey data on respondents’ left-right position are country specific (Klingemann, Volkens et al. 2006: 59) and this is due to countries’ specific present or historical affairs. As Inglehart noted “The left-right ideological dimension … means different things to different people; moreover its meaning and social basis change over time” (Inglehart 1985), and Klingemann and Fuchs (1989) added “variety is not random, but limited”. As mentioned initially, this variety may be caused by different reasons (social factors, values, issue preferences or the ideological orientation towards political parties) which make people placing themselves on the left-right scale but could also be caused by people’s diverse use of the response scale. The focus of this study is on the latter as I assume that there is variety in the use of the response scale depending on the current and historical experience of the countries.

Meanwhile, the current state of a country will be reflected in the issues which are on the agenda in that country and also by people’s orientation towards political parties, I argue that the historical experience of countries and in particular its political regime’s history has an impact on the left-right opinion and more precisely, on the connotations of the terms “left” and “right”. The term “right” referred in countries with a fascistic history to the fascistic-totalitarian regime, whereas in the former Eastern bloc the term “left” was associated with the socialistic-authoritarian regime. As a consequence it is reasonable to expect that these terms keep their specific connotation in the respective countries. Moreover, since in none of the cases this history is seen favourably by the majority of the people, one can expect that social desirability occurs. In other words, one does not want to state his or her far left/right position because this might not be social desirable (Krosnick 1991; Krosnick 1999; Tourangeau, Rips et al. 2000). As European countries experienced different political regime histories, differences in the use of the left-right response scale are expected and the hypothesis H2 is formulated accordingly:

*Hypothesis H2:* *There are cross-national differences in the use of the left-right response scale due to country’s political regime history.*

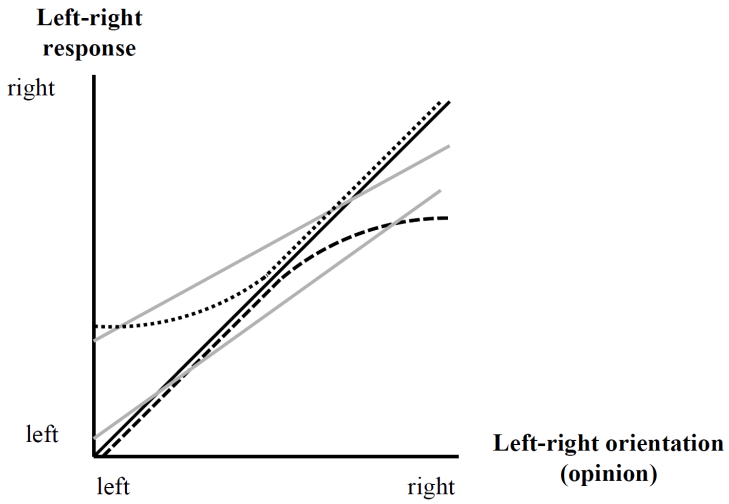
Social desirability is not expected in countries with a democratic past but for those with a fascistic-totalitarian or with a socialistic-authoritarian past. From there derive the following hypotheses:

*Hypothesis H2a: In countries with a fascistic-totalitarian past, the term "right" has a specific connotation which makes it seem less favourable and so people will hesitate to use it to describe their own position as "right".*

*Hypothesis H2b: In countries with a socialistic-authoritarian past, the term "left" has a specific connotation which makes it seem less favourable and so people will hesitate to use it to describe their own position as "left".*

Figure 3 presents the respective response functions for people in countries with a fascistic-totalitarian past (dashed) and those in a country with a socialistic-authoritarian past (dotted). This figure suggests that people in countries with a fascistic-totalitarian past will understate that they are "right" and thus their response function is concave, meanwhile people in countries with a socialistic-authoritarian past will overstate that they are "left" and thus there response function is convex with a higher intercept. By linear approximation these deviations lead to differences in slopes and intercept (grey lines).

**Figure 3: Response function**




How present these specific connotations in the respective country are depends on the time the fascistic-totalitarian- or socialistic-authoritarian-regime has lasted and has already past, on those who experienced it, the nature of this experience, and how it was conserved in the country. Overall, I expect that different age groups will have different connotation of the terms "left" and "right" and thus use the left-right response scale differently. From this derives the hypothesis:

*Hypothesis H3: Different age groups use the left-right scale differently.*

More specific I expect that a negative connotation is most present for the generation who actually suffered under the authoritarian/totalitarian regime and the negative connotation will vanish over time, so that the youngest generation will not have this connotation. The last hypothesis requires that no measures are taken to keep this negative connotation over time and over generations present.

## 4 Case selection: Europe

The left-right concept is a European concept as it has its origins in the seating arrangements of the French National Assembly 1789 where the right belonged to the aristocracy and the left to the radical republicans (Goodsell 1988). The concept is also used in other continents but has the longest tradition in Europe. Therefore, this analysis concentrates on European countries, and the European Social Survey Round 4, 2008/09 (ESS 4)[2] is employed. This dataset has the advantage that it contains repetitions of the left-right self-placement question in the supplementary questionnaires. In the main questionnaire the commonly used question, as mentioned before, is asked:

*"In politics people sometimes talk about "left" and "right". Using this card, where would you place yourself on this scale, where 0 means left and 10 means right?"*

For the repetitions the Split Ballot multitrait-multimethod (SB-MTMM) design (Saris, Satorra et al. 2004) was employed, i.e. one random group gets one type and another random group another type of question. Group one was asked exactly the same question again and got exactly the same answer categories. Group two got also the same question but the answer categories change to 0 "extreme left" to 10 "extreme right", all other categories remain unlabelled.

The countries which will be employed for the analysis are presented in Table 1 according to their political regime history.

[2] ESS Round 4: European Social Survey Round 4 Data (2008). Data file edition 1.0. Norwegian Social Science Data Services, Norway – Data Archive and distributor of ESS data.

**Table 1: Countries according to their political regime history**

| **Fascistic-totalitarian:** | **Socialistic-authoritarian:** | **Democratic:** |
|---|---|---|
| Germany[3] | Bulgaria | Belgium |
| Spain | Croatia | Greece |
| Portugal | Czech Republic | Cyprus |
| | Estonia | Denmark |
| | Latvia | Finland |
| | Poland | France |
| | Romania | Great Britain |
| | Russia | The Netherlands |
| | Slovakia | Norway |
| | Slovenia | Sweden |
| | Ukraine | Switzerland |

## 5 Special case: Germany

Among the European countries, Germany is the closest to a natural experiment in order to study the impact of political regime history on the connotations of "left" and "right". Germany had a fascistic-totalitarian regime during 12 years which lead to World War II and made Germans very sensible to this topic until recent days. The Nazi government was right-winged (Fritzsche 1998) and so I expect that the term "right" never shook off its semantical closeness to the Nazis and that its negative associations remain present.

After the lost war, Germany was divided: while the West got democratized, the East faced a "left" socialistic-authoritarian regime for 40 years. Therefore, I expect for people in the East that the term "left" is still connected to this past. Yet, this regime received glorification during the last years and nowadays a majority of East Germans have a positive attitude towards the former regime (AFP 2007; Reuters 2009). So social desirability might not exist or not as strong as in the former case. Therefore hypothesis H2b may not be rejected for those who have these positive memories.

In order to test whether having experienced a non-democratic political regime has an impact on the connotation of "left" and "right", German residents are grouped into three age cohorts according to the year they were born in: People born before 1950 grow up in the immediate post - World War II - period, people born between 1950 and 1972 (both years inclusive) are those who grew up in the time of the Cold War, and finally everyone born after 1972 lived their young adult life in a reunited Germany and United Europe. In order to detect specific connotations due to a different political regime history, the German sample is split into East and West, whereby Berlin is left out due to its former belonging to both parts,

[3] In the European comparison Germany will be considered as a whole.

and crossed with the age cohorts. These cutting points lead to the distribution of people as presented in Table 2.

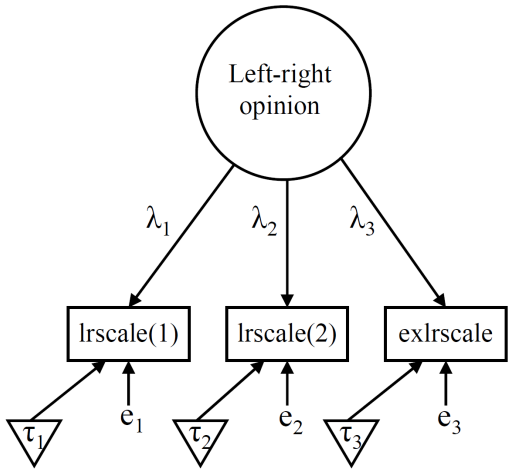
**Table 2: Groups according to age and region**[4]

| | East | West |
|---|---|---|
| **WW II** | 297<br>35 % | 489<br>28 % |
| **Cold War** | 369<br>43 % | 805<br>47 % |
| **United** | 194<br>22 % | 426<br>25 % |
| **Total** | 860<br>100% | 1720<br>100% |

## 6 Methodology

The most widely used method to test for measurement invariance is multigroup confirmatory factor analyses (MGCFA) (Jöreskog and Sörbom 1993; Billiet 2002). For our analysis the measurement model is specified as presented in Figure 4.

**Figure 4: Measurement model**




Where "left-right opinion" is the unobserved latent concept, "lrscale1" is the observed variable in the main questionnaire, "lrscale2" and "exlrscale" are the observed variables in the supplementary questionnaires, "$\lambda_i$" is the loading, "$\tau_i$" is the intercept and "$e_i$" is the disturbance terms for the $i^{th}$ method. It is assumed that the disturbance terms have a mean of 0, and are uncorrelated with each other and with the latent variable.

[4] It appears that there are much less East Germans than West Germans but one has to take into account that East Germany contains only 5 *Länder*, meanwhile West Germany 10 *Länder*. So in fact East Germany is overrepresented as 17 % of the population lives in the East and 83 % live in the West. (StatistischesBundesamt 2009). However, this will not affect our analysis as we consider the groups separately.

As three repetitions of the same question may lead to memory effects the ESS follows Saris, Satorra and Coenders (2004) who developed the so called Split-Ballot multitrait-multimethod (or SB-MTMM) experiment where each respondent has to answer only one repetition in the supplementary questionnaire. Everyone answers the question about the self-placement on the left-right scale in the main questionnaire (lrscale(1)), and one randomly selected group answers the repetition of the same question (lrscale(2)) in the supplementary questionnaire, and an other group the repetition of the question with the different response scale extreme left-right (exlrscale).

The items "lrscale(1)" and "lrscale(2)" are identical questions with the same answer categories. As Van Meurs and Saris (1990) find that memory effects disappear if the time interval between the questions is at least 15 minutes which is in the ESS the case, it is reasonable to expect people answering both questions in the same way; therefore the loadings and the intercepts are set to be equal: $\lambda_1 = \lambda_{2,}\ \tau_1 = \tau_{2.}$

As argued before, the end points of the response scale should have fixed positions on the opinion scales of all respondents and extreme left/right provide those fixed reference points for the left-right dimension. Therefore, the scale of the latent variable is set to be equal to the scale of the extreme left-right scale (exlrscale), by fixing the loading of "exlrscale" to one and the intercept to zero: $\lambda_3 = 1$ , $\tau_3 = 0$. In this way the scale of the latent variable is also specified: it is expressed in the same units as the observed variable "exlrscale".

### 6.1 Testing measurement invariance

Measurement invariance means that individuals' answers are not dependent on their group characteristics (Mellenbergh 1989; Meredith and Millsap 1992; Meredith 1993). There are three different levels of invariance testing, in order: configural, metric, and scalar invariance. Configural invariance is achieved if the model of interest fits across the groups. Metric invariance is a necessary condition for comparing relationships with other variables, and it requires that the loadings are the same across groups.

$$\lambda_{1i} = \lambda_{1j} \ldots = \lambda_1 \qquad (2)$$
$$\lambda_{2i} = \lambda_{2j} \ldots = \lambda_2$$
$$\lambda_{3i} = \lambda_{3j} \ldots = \lambda_3$$

$\lambda$ = factor loading, i and j refer to different countries

These two requirements are sufficient for comparison of relationships with other variables. The comparison of means requires scalar invariance which means that the intercepts of the items are also equal across groups (Horn 1983; Meredith 1993; Steenkamp and Baumgartner 1998).

$$\tau_{1i} = \tau_{1j} \ldots = \tau_1 \quad (3)$$

$$\tau_{2i} = \tau_{2j} \ldots = \tau_2$$

$$\tau_{3i} = \tau_{3j} \ldots = \tau_3$$

$\tau$ = item intercept, i and j refer to different countries

The null hypothesis that *people use the left-right scale in the same way across groups (H 0)* implies that loadings and intercepts will be equal across groups. If this model is rejected the alternative hypotheses might be accepted.

### 6.2 Testing the measurement model

For estimation the Maximum likelihood estimator of LISREL 8.51 (Jöreskog and Sörbom 2001) is used and for model evaluation and testing I rely on JRule software (Van der Veld, Saris et al. 2008) based on the procedure developed by Saris, Satorra and Van der Veld (2009). Saris et al. show that the commonly used evaluation procedures for structural equation models cannot be trusted as the test statistics and Fit indices are unequally sensitive for different misspecifications. They propose using the Modification index (MI) as test statistic for detection of misspecifications (expressed as expected parameter change (EPC) in combination with the power of the MI test. The criterion for misspecification in this analysis is a deviation of 0.1 between the groups. The authors specify four situations for which the decision concerning the presence or absence of misspecifications can be made (Saris, Satorra et al. 2009: 579) which are presented in Figure 5.

**Figure 5: Decisions to be made in the different situations defined on size of the modification index (MI) and the power of the test**

| | **High power (>.8)** | **Low power (<.8)** |
|---|---|---|
| **Significant MI** | Inspect Expected Parameter Change (EPC) | Misspecification present |
| **Nonsignificant MI** | No misspecification | Inconclusive |

Data have been generated in order to see if the above specified tests would have sufficient power to detect a deviation in parameter values are equal or larger than .1. It turned out that this was in general indeed the case[5].

## 7 Comparison of means and relationships with other variables across groups

If variation across the groups is found, the follow-up question is whether this does not allow cross-country comparisons. Therefore, the observed means will be compared with the means after correction for the difference of scales (means of the latent variable, the opinion), and the relationship with another variable as observed and after correction for scale difference (latent variable) will be compared, too. There is consensus among political scientist that the content of the left-right dimension is linked to economic issues. The conventional interpretation is, among others, that "left" is associated with support for government control of the economy, meanwhile "right" is linked to support for free market (Eisinga and Ooms 2007: 54). Therefore, the attitude towards governments' intervention in the economy in order to reduce differences in income levels is employed as independent variable affecting the left-right self-placement. Even though the direction of causality could also be the other way around (Weber and Saris 2010), for the sake of this analysis assuming this relation will be sufficient. The regression coefficient of the observed variables is compared with the one of the latent variables after correcting for measurement error. The attitude towards income equality is measured by the following question:

*Please say to what extent you agree or disagree with each of the following statements: The government should take measures to reduce differences in income levels.*
The answer categories are 1 Agree strongly, 2 Agree, 3 Neither agree nor disagree, 4 Disagree and 5 Disagree strongly.

## 8 Test of hypotheses in the case of Europe

In the first step the null hypothesis was tested. When the intercepts and slopes are set to be equal across all countries, JRule detects misspecifications in Estonia, France, Finland, Germany, the Netherlands, Portugal, Slovakia, and Spain, and so the model with intercepts and loadings restricted to be equal across all countries, i.e. $H_0$, cannot be accepted.[6]

In the following step the alternative hypotheses that people from countries with a fascistic-totalitarian (H2a) and from a socialistic-authoritarian (H2b) past will use the left-

[5] The only exception was if the values of the parameter $\lambda_1$ and $\lambda_3$ would be exactly equal. However that is unlikely and was also not the case as we will show below.
[6] Traditional fit statistics: chi2 = 421.96 with df = 197, and the Root Mean Square Error of Approximation (RMSEA) = 0.03.

right response scale differently than those from countries with a democratic past were tested. Both groups of countries are compared to those with a democratic past. Therefore, initially invariance between the countries with a democratic past was tested. JRule detects with high power (>.9) misspecifications in Finland and France.[7] In continuation, Finland and France are excluded from the analyses.

Setting loadings and intercepts equal across the countries with a democratic and a fascistic-totalitarian past, JRule does not detect misspecifications, even though the power is high (>.9) for Spain and Portugal but only for Germany[8]. Therefore H2a that in countries with a fascistic-totalitarian past, the term "right" has a specific connotation which makes it seem less favourable and that thus people will hesitate to use it to describe their own position as "right" has to be rejected. This behaviour may occur in Germany but is not happening in Spain and Portugal.

Setting loadings and intercepts equal across the countries with a democratic and socialistic-authoritarian past, even though the power is high (>.9), JRule does not detect misspecifications[9]. Therefore, H2b that in countries with a socialistic-authoritarian past, the term "left" has a specific connotation which makes it seem less favourable and so people will hesitate to use it to describe their own position as "left" has to be rejected, too. Consequently, the hypothesis H2 that there are cross-national differences in the use of the left-right response scale due to country's political regime history has to be rejected.

## 9 Further exploration

In the final step of this analysis, it was tested whether there is one common response functions for all countries with a democratic, fascistic-totalitarian and socialistic-authoritarian past except Finland, France and Germany. JRule did not detect any misspecifications even though the power of the test was high (.9). The response function for these countries is indicated below with the standard error in brackets and beneath the T-values[10]:

| | | | | |
|---|---|---|---|---|
| Response = | -.29 | + | 1.06 | *Opinion |
| | (.04) | | (.01) | |
| | -7.99 | | 154.64 | |

[7] Traditional fit statistics: chi2 = 145.96 with df = 100, and the RMSEA = 0.01.
[8] Traditional fit statistics: chi2 = 157.40 with df = 104, and the RMSEA = 0.01.
[9] Traditional fit statistics: chi2 = 232.42 with df = 122, and the RMSEA = 0.02.
[10] Traditional fit statistics: chi2 = 109.99 with df = 192, and the RMSEA = 0.0.

A test was also done to see if the three countries Finland, France and Germany had the same response function. Also this hypothesis could not be rejected. Thus, one common response function for Finland, France and Germany was detected which is indicated below with the standard error in brackets and beneath the T-values[11]:

| | | | | |
|---|---|---|---|---|
| Response = | -1.23 | + | 1.26 | *Opinion |
| | (.11) | | (.02) | |
| | -10.89 | | 55.75 | |

Table 3 shows the relations between the opinion and response on average for people in the countries of the two groups, and highlights the difference. It appears that people in Finland, France and Germany clearly make a distinction between the two response scales meanwhile people in the remaining country hardly make this distinction.

This result suggest that instead of alternative hypothesis H2 it is more reasonable to accept H1 that people in different countries answer differently on the a response scale labelled with left/right. However, as in Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Great Britain, Greece, Latvia, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands and Ukraine people answer approximately similar the null hypothesis is accepted for these countries, and Finland, France and Germany are considered outliers.

**Table 3: Relation between opinion and response on average in the clusters**

| Opinion | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Reponse all countries excluding Finland, France, Germany | -0.29 | 0.77 | 1.83 | 2.89 | 3.95 | 5.01 | 6.07 | 7.13 | 8.19 | 9.25 | 10.31 |
| Response Finland, France, Germany | -1.23 | 0.03 | 1.29 | 2.55 | 3.81 | 5.07 | 6.33 | 7.59 | 8.85 | 10.11 | 11.37 |
| **Difference** | **-0.94** | **-0.74** | **-0.54** | **-0.34** | **-0.14** | **0.06** | **0.26** | **0.46** | **0.66** | **0.86** | **1.06** |

[11] Traditional fit statistics: chi2 = 25.82 with df = 25, and RMSEA = 0.0.

## 10 Test of hypotheses in the case of the age cohorts in East and West Germany

In the case of the age cohorts in East and West Germany JRule does not detect any misspecifications when the slopes and intercepts are kept equal across groups. This means that people on average in all age cohorts in East and West Germany share the same response function[12] which is indicated below with the standard error in brackets and beneath the T-values:

| | | | | |
|---|---|---|---|---|
| Response = | -1.15 | + | 1.23 | *Opinion |
| | (.16) | | (.03) | |
| | -7.13 | | 36.1 | |

Therefore, the null hypothesis cannot be rejected and hence, the alternative hypotheses H2a, H2b and also H3 that different age groups use the left-right scale differently have to be rejected.

## 11 Consequences of the differences

Given that statistical significant variation was found in the comparison of the European countries the question is whether it is so serious that it does not allow cross-country comparisons? Therefore the means and the relationship with another variable are considered. As table 3 shows, the differences in the response function only matter towards the end points of the left-right scales in the two groups. So if most people are in the middle of the scale the difference in the means will not matter much. As this is the case for all countries (appendix A1), the ranking of country's mean changes only slightly when the observed and the latent mean are compared (appendix A2). The Pearson's correlation between the observed means (affected by the difference in response function) and latent means (free of these effects) is .9873 and the Spearman's rank correlation between the observed and latent rank ordering is .9889. This implies that even though differences in the use of the left-right response scale across countries were found, countries' means can still be compared.

As the differences seem to be relevant towards to the end of the scale this might not be captured by the means but might still affect the relationship with other variables. Therefore, the effect of the attitude towards government's intervention in the economy on left-right self-placement as observed is compared to the effect between the variables after correcting for the scale difference. Differences > .1 are found only for Croatia, Finland,

[12] Traditional fit statistics the models: chi2=34.29, df = 52, RMSEA=0.0.

France, and Sweden (appendix A3). Overall this also has only a minor effect as the Pearson's correlation is .9885 and the Spearman's rank correlation of the rank ordering is .9908. Yet, this may only be true for this specific analysis of the relationship of left-right self-placement and the attitude towards governments' intervention in the economy as the differences between regression coefficient between the observed variables and the one after correction for the scale difference depends also on the size of the observed regression coefficient.

## 12 Conclusion

In this study I analysed the use of the left-right response scale which means how people use the eleven categories from 0 for left to 10 for right to express their left-right orientation. I argued that people in different countries may use the scale differently depending on the political regime history of their respective country as this historical experience led to specific connotations of the terms "left" and "right" which could cause social desirability. This hypothesis implies that comparisons among individuals and across countries could be problematic.

Variation across the European countries in the use of the left-right response scale was found and hence the null hypothesis had to be rejected. However, in further explorations it resulted that only Finland, France and Germany were different to the other 22 countries. Thus, the null hypothesis was accepted for those countries. Testing the alternative hypothesis that there are differences in the use of the left-right response scale based on the political regime history of the countries no evidence was found and thus those alternative hypotheses H2, H2a and H2b had to be rejected.

One response function for the majority of the countries was identified. People on average in these 22 countries hardly make a distinction between the left-right and the extreme left-right response scale and hence, hypothesis H1 had to be rejected. In contrast, people in Finland, France and Germany perceive the two scales differently and adjust their responses accordingly. Thus, a different response function for those three countries was found and the hypothesis H1 cannot be rejected for these countries.

In the case of Germany, which was considered as a natural experiment given that East and West Germany experienced during 40 years different political regimes, the null hypothesis that people use the left-right response scale in the same way could not be rejected and thus the alternative hypotheses H2a, H2b and also H3 that different age groups use the left-right scale differently had to be rejected. As elaborated in the argumentation, the impact

the political regime history has on people's use of the left-right response scale depends on those who experienced it, the nature of this experience, and how it was conserved in the country. It was indicated that in East Germany social desirability due to the former "left" regime may not occur as many East Germans have a positive attitude towards the former regime. Furthermore, after the reunion East Germany was integrated into West Germany which may also explain why no specific connotation or association remained.

The results which led to the rejection of the alternative hypotheses H2, H2a and H2b could also be caused by another reaction to social desirability. The assumption here was that people who perceive social desirability will hesitate to place themselves at the "left" or "right" end of the scale but they may also just not place themselves at all. In fact, we find high non-response among people from countries with former socialistic-authoritarian regimes: it varies from 9.66 % in the Czech Republic to 42.93 % in the Ukraine, and for people from countries with a fascistic past, Spain 19.72 % and for Portugal 32.49 %. In comparison, the Western European countries have much lower non-response rates: it varies from 2.07% in Norway to 10.03% in Great Britain. Unfortunately my approach does not allow shedding light on this as the use of a response scale cannot be explained when people do not respond.

To sum up, this analysis yields an important finding for scholars who are studying the left-right concept as it was shown that the precondition for comparing group means of left-right self-placement is fulfilled. However, this was not found for the relationship with another variable, here government's intervention in the economy. Given that people on average in the two groups use the left-right response scale differently, the relationship after correcting for the scale difference changes. In this study these differences were not very salient, but as they also depend on the size of the coefficients, in another analysis this could be more pronounced and thus may not allow comparisons of Finland, France and Germany with the remaining European countries. Therefore, the regression coefficients for these three countries should always be corrected for the scale difference by dividing them by 1.26 which is the size of the slope of the response function as the slope has an increasing effect on the size of the effect of the unstandardized regression coefficient between left-right scale and another variable.

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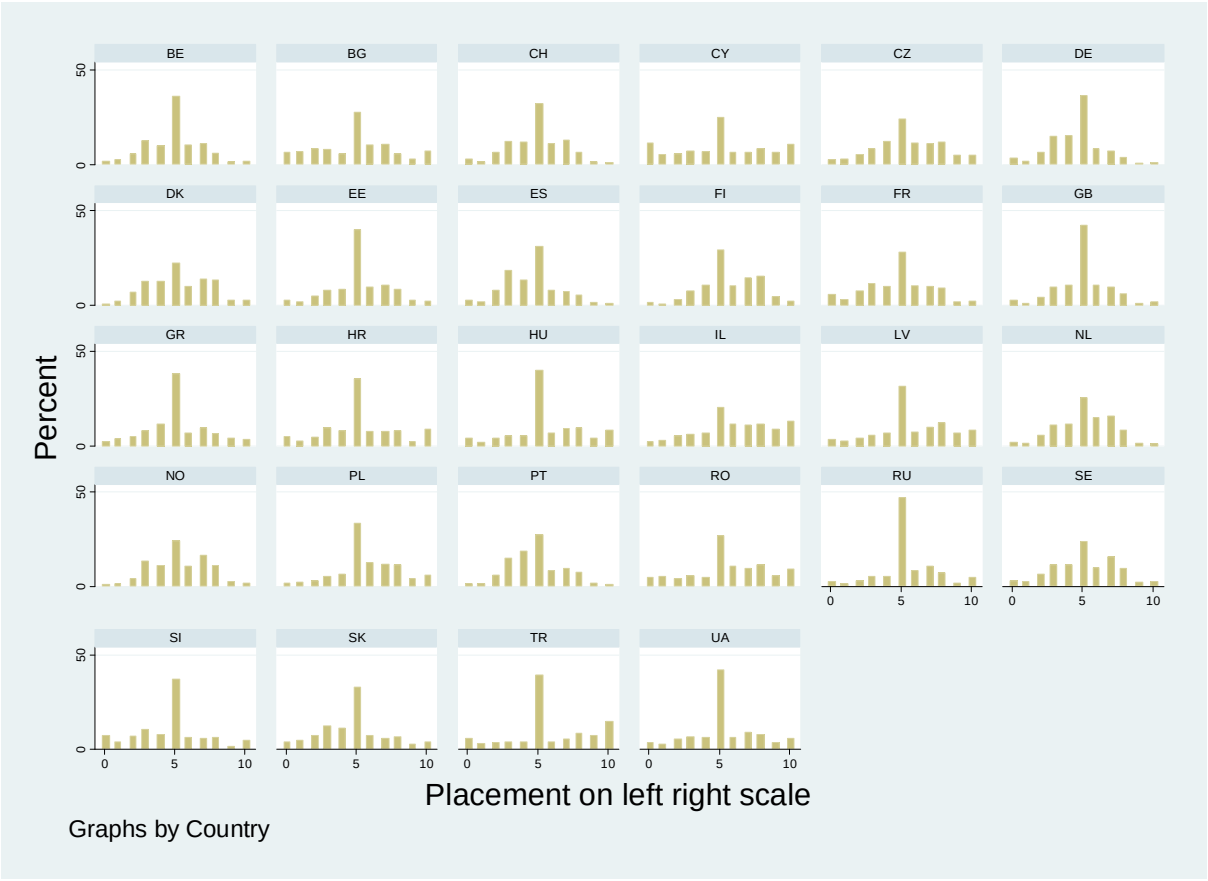
# Appendix

## A1 Placement on left-right scale in all countries



## A2 Comparison of observed and latent mean

| | observed mean | ranking observed mean | ranking latent mean | latent mean | **Missing** |
|---|---|---|---|---|---|
| Belgium | 4.92 | 8 | 9 | 4.91 | 4.60 % |
| Bulgaria | 4.92 | 7 | 7 | 4.82 | 27.89 % |
| Croatia | 5.26 | 17 | 19 | 5.32 | 24.66 % |
| Cyprus | 5.07 | 11 | 11 | 5.08 | 16.54 % |
| Czech Republic | 5.42 | 21 | 20 | 5.38 | 9.66 % |
| Denmark | 5.31 | 18 | 18 | 5.27 | 3.98 % |
| Estonia | 5.19 | 15 | 15 | 5.21 | 21.67 % |
| Finland | 5.71 | 23 | 22 | 5.50 | 4.97 % |
| France | 4.79 | 5 | 4 | 4.84 | 5.98 % |
| Germany | 4.54 | 2 | 2 | 4.55 | 7.82 % |
| Great Britain | 5.00 | 10 | 10 | 5.04 | 10.03 % |
| Greece | 5.12 | 12 | 12 | 5.11 | 17.18 % |
| Latvia | 5.75 | 25 | 24 | 5.68 | 16.21 % |
| Netherlands | 5.15 | 14 | 13 | 5.12 | 4.05 % |
| Norway | 5.33 | 19 | 16 | 5.26 | 2.07 % |
| Poland | 5.75 | 24 | 25 | 5.69 | 16.80 % |
| Portugal | 4.83 | 6 | 6 | 4.86 | 32.49 % |
| Romania | 5.59 | 22 | 23 | 5.65 | 31.13 % |
| Russia | 5.39 | 20 | 21 | 5.44 | 36.66 % |
| Slovakia | 4.73 | 4 | 5 | 4.77 | 14.31 % |
| Slovenia | 4.63 | 3 | 3 | 4.69 | 20.53 % |
| Spain | 4.54 | 1 | 1 | 4.52 | 19.72 % |
| Sweden | 5.12 | 13 | 14 | 5.17 | 2.90 % |
| Switzerland | 4.92 | 9 | 8 | 4.90 | 7.42 % |
| Ukraine | 5.26 | 16 | 17 | 5.26 | 42.93 % |

Pearson’s correlation of observed and latent mean: .9873

Spearman’s rank correlation of rank ordering: .9889

## A3 Comparison of observed and latent effect of the attitude towards income equality and left-right self-placement

| country | rank | latent coeff. | stand. Error | rank | observed coeff. | stand. Error | Difference between observed and latent coeff. |
|---|---|---|---|---|---|---|---|
| **Belgium** | 6 | **0.18** | 0.04 | 7 | **0.19** | 0.04 | 0.01 |
| **Bulgaria** | 10 | **0.3** | 0.06 | 10 | **0.32** | 0.06 | 0.02 |
| **Croatia** | 2 | **0.01** | 0.08 | 4 | **0.12** | 0.08 | 0.11 |
| **Cyprus** | 16 | **0.38** | 0.10 | 16 | **0.41** | 0.1 | 0.03 |
| **Czech Republic** | 24 | **0.68** | 0.04 | 24 | **0.71** | 0.04 | 0.03 |
| **Denmark** | 23 | **0.65** | 0.04 | 23 | **0.69** | 0.05 | 0.04 |
| **Estonia** | 15 | **0.35** | 0.05 | 13 | **0.37** | 0.05 | 0.02 |
| **Finland** | 21 | **0.5** | 0.03 | 21 | **0.63** | 0.04 | 0.13 |
| **France** | 18 | **0.42** | 0.04 | 20 | **0.53** | 0.05 | 0.11 |
| **Germany** | 11 | **0.31** | 0.03 | 14 | **0.39** | 0.03 | 0.08 |
| **Great Britain** | 13 | **0.35** | 0.03 | 12 | **0.37** | 0.04 | 0.02 |
| **Greece** | 19 | **0.45** | 0.07 | 18 | **0.48** | 0.07 | 0.03 |
| **Latvia** | 3 | **0.05** | 0.07 | 2 | **0.06** | 0.07 | 0.01 |
| **Netherlands** | 20 | **0.46** | 0.04 | 19 | **0.49** | 0.04 | 0.03 |
| **Norway** | 22 | **0.62** | 0.05 | 22 | **0.66** | 0.05 | 0.04 |
| **Poland** | 1 | **-0.01** | 0.06 | 1 | **-0.01** | 0.06 | 0 |
| **Portugal** | 7 | **0.15** | 0.06 | 6 | **0.15** | 0.07 | 0 |
| **Romania** | 8 | **0.2** | 0.08 | 8 | **0.21** | 0.08 | 0.01 |
| **Russia** | 5 | **0.13** | 0.05 | 5 | **0.14** | 0.05 | 0.01 |
| **Slovakia** | 17 | **0.42** | 0.05 | 17 | **0.45** | 0.06 | 0.03 |
| **Slovenia** | 4 | **0.09** | 0.09 | 3 | **0.09** | 0.09 | 0 |
| **Spain** | 9 | **0.28** | 0.05 | 9 | **0.27** | 0.05 | -0.01 |
| **Sweden** | 25 | **0.84** | 0.05 | 25 | **0.95** | 0.05 | 0.11 |
| **Switzerland** | 14 | **0.36** | 0.04 | 15 | **0.39** | 0.05 | 0.03 |
| **Ukraine** | 12 | **0.32** | 0.06 | 11 | **0.34** | 0.07 | 0.02 |

Spearman's rank correlation of rank ordering: .9908