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Van Hootegeem, Arno; Meuleman, Bart; Abts, Koen

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RESEARCH NOTE

Measuring public support for distributive justice principles: assessing the measurement quality of the Basic Social Justice Orientations scale

Arno Van Hootegeem ¹, Bart Meuleman¹, and
Koen Abts²

¹Centre for Sociological Research, KU Leuven, Leuven, Belgium and ²Tilburg School of Social and Behavioural Sciences, Tilburg University, Tilburg, The Netherlands

A growing body of research analyses public support for distributive justice principles (e.g., Aalberg, 2003; D'Anjou, Steijn, & Van Aarsen, 1995; Reeskens & van Oorschot, 2013), usually distinguishing the principles of equality, equity, and need (Deutsch, 1975; Rawls, 1972). Although the equality principle states that everybody should have the same access to certain resources, equity emphasizes the importance of distribution on the basis of proportionality and individual responsibility, and need encompasses a selective concern for those who are highest in need.

Empirically investigating public opinion towards distributive justice requires adequate measurement instruments. Although several surveys operationalize preferences for the distributive principles, the indicators used are often single items (e.g., Aalberg, 2003; Arts & Gelissen, 2001) that regularly only indirectly tap into the principles (e.g., Reeskens & van Oorschot, 2013). Moreover, existing measurements scales are usually designed to measure only one or two principles (e.g. D'Anjou et al., 1995; Davey, Bobocel, Hing, & Zanna, 1999) or incorporate preferences for multiple principles such as equality and need within one latent scale (e.g., Rasinski, 1987; Wegener & Liebig, 1995). In response to this lack of agreed-upon instruments, Hülle, Liebig, and May (2017) developed the Basic Social Justice Orientations (BSJO) scale that measures preferences for equality, equity, and need, and additionally includes the distributive principle of entitlement (which emphasizes ascribed social status as a basis for distribution; Miller, 1999). Hülle et al. (2017, p. 686) validate the BSJO scale in three German

*All correspondence concerning this article should be addressed to Arno Van Hootegeem, Centre for Sociological Research, KU Leuven, Parkstraat 45 – Box 3601, Leuven, Belgium. E-mail: arno.vanhootegeem@kuleuven.be

surveys and conclude that the scale is “an appropriately validated instrument for measuring preferences for the four basic justice principles.”

Notwithstanding the importance of their work, further assessment of the measurement quality of the BJSO scale is warranted—in particular, because four items of the BSJO scale (one per justice principle) are included in the module on justice and fairness of the European Social Survey (ESS) round nine (2018/2019), which is likely to generate a staple of empirical research on social justice in the coming years. For several reasons, the knowledge base regarding the validity of the BSJO items provided by Hülle et al. (2017) has some limitations. First, the validation of the scale is based only on German data and confined to respondents working as employees. Given the claims that notions of distributive justice are socially, culturally, and institutionally informed (Arts & Gelissen, 2001; Morris & Leung, 2000; Reeskens & van Oorschot, 2013; Taylor-Gooby et al., 2018), it is especially relevant to know whether the measurement instruments travel successfully to other national contexts and social categories. Second, and most importantly, the factorial validity of the scale is tested by means of exploratory techniques—to wit principal component analysis (PCA)—which is less suitable to test a theoretically grounded measurement model (Brown, 2006; Fabrigar, Wegener, MacCallum, & Strahan, 1999). In particular, by using orthogonal rotation, the authors make the assumption that the different dimensions of justice preferences are uncorrelated. This assumption is highly unrealistic (e.g., Laenen & Meuleman, 2018; Otto, Baumert, & Bobocel, 2011), which may introduce severe bias into the results (Fabrigar et al., 1999; Widaman, 1993). Consequently, an alternative approach that assesses the validity of the scale while considering the interconnectedness of preferences for the justice principles is warranted.

To remedy these shortcomings, our approach includes three types of analyses. First, we validate the scale on newly collected data in Belgium that is, a country with a diverging institutional design of welfare policies (Kammer, Niehues, & Peichl, 2012). Concretely, we analyze the country-specific questions for ESS-Belgium that contain the full 12-item version of the BSJO scale by means of confirmatory factor analysis (CFA). Second, we address the construct validity of the short four-item version of the BJSO that is included in the ESS main questionnaire, by testing if using single items instead of latent constructs yields similar relationships between social justice preferences and relevant social structural and ideological predictors. Third, we replicate the validity analyses Hülle et al. (2017) carried out for two German datasets (The German Socio-Economic Panel Innovation Sample (SOEP-IS) and The German General Social Survey (ALLBUS)) (DIW Berlin, 2012; GESIS, 2018),¹ but this time for the whole adult population and using CFA (see [Supplementary Material](#)).

Data and Methods

Datasets

The main analysis for this research note is carried out on the Belgian data from the ESS round nine (2018/2019; *dataset version 1.0*; ESS, 2018). Four BSJO items are included

¹Hülle et al. (2017) also analyse the first wave of the panel “Legitimation of inequality over the life span”, but these data are, at the time of writing, not publicly available and could not be provided due to regulations regarding data protection.

in the main questionnaire of the ESS (and are thus collected in all ESS countries). The Belgian ESS team added the eight remaining items of the full scale to the questionnaire as country-specific items. ESS in Belgium is a Computer-Assisted Personal Interviewing survey among the Belgian resident population of 15 years and older. The data contains 1767 respondents selected by means of two-stage random sampling (response rate = 57.6%). The descriptive statistics of the sample are displayed in [Supplementary Table S1](#).

Indicators

Each BSJO item asks respondents to indicate to what extent they consider a particular situation (that is linked to a justice principle) as just. Equality is measured by items referring to equal living conditions, equal distributions of income and wealth, and the desirability of minor income disparities. Need is operationalized through items mentioning taking care of those who are in need, securing the most basic services for all people and providing special benefits for caretakers. Equity is measured by items regarding higher earnings for hard working people, letting income differences reflect performance, and people only receiving what they have acquired through their own efforts. Entitlement is operationalized by questions referring to advantages for respectable families, those with a higher societal status, and well-reputed and wealthy persons. The items are registered using a 5-point scale (1—*strongly agree* to 5—*strongly disagree*) and their exact wordings are displayed in [Table 1](#).

Some of the items were slightly altered in the ESS data compared to the original wording of the BSJO scale. The first item measuring the principle of need (item E) was adjusted in the main questionnaire of the ESS. Instead of solely asking whether respondents agree with taking care of those in need, the item reads “A society is fair when it takes care of those who are poor and in need, regardless of what they give back to society.” This reference to unconditionality was included in order to create more variance in responses and to probe a more outspoken orientation towards need. In addition, the last item of the entitlement principle (item F) was slightly adjusted in the Belgian ESS. Instead of referring to the wealth and reputation that people have built up themselves, the item asks whether “A society is just when children can profit from the reputation and wealth that their parents have built up.” This alteration was made to improve the content validity of the scale, as this wording more clearly refers to ascription instead of achievement and thus matches the theoretical content of this principle more closely ([Table 1](#)).

We also test whether the single items included in the ESS core module have the same construct validity as the full scale with three items per dimension (for the same analysis on ALLBUS and SOEP-IS data, see [Supplementary Material](#)). To do so, we link the justice principles to relevant social structural and ideological predictors ([Aalberg, 2003](#); [Arts & Gelissen, 2001](#); [D’Anjou et al., 1995](#); [Reeskens & van Oorschot, 2013](#); [van Oorschot, Reeskens & Meuleman 2012](#)). As structural characteristics, we use age, gender, education (three categories: lower and lower secondary, higher secondary, and tertiary), occupation (six classes based on the Erikson–Goldthorpe–Portocarero scheme: service class, white collar workers, blue collar workers, self-employed, unemployed, and the retired and other nonactives) and subjective income (four categories

Table 1.
BSJO Scale for Measuring Order-Related Justice Attitudes

Justice principle	Item code	Wording
Equality	C	It is just if all people have the same living conditions
	K	It is just if income and wealth are equally distributed among the members of our society*
	G	<i>A society is just if there are only minor income disparities between people</i>
Need	E	A society is just if it takes care of those who are poor and needy*
	J	It is just if people taking care of their children or their dependent relatives receive special support and benefits
	A	<i>A society is just if all people have sufficient nutrition, shelter, clothing as well as access to education and medical care</i>
Equity	B	It is just if hard working people earn more than others*
	I	It is just if every person receives only that which has been acquired through their own efforts
	H	<i>A society is just if differences in income and assets reflect performance differences between people</i>
Entitlement	D	It is just if members of respectable families have certain advantages in their lives*
	L	It is fair if people on a higher level of society have better living conditions than those on the lower level
	F	<i>It is just if people who have achieved good reputation and wealth profit from this later in life</i>

Note. Items in italics are not included in the ALLBUS 2014 data; Items are asked in alphabetical order for ALLBUS 2014 and SOEP-IS 2012; For the ESS, items with an asterisk were included in the main questionnaire and all the other items were included in alphabetical order in the Belgian country-specific questionnaire.

Source: Hülle et al. (2017)

referring various degrees of difficulty to live on the present income). Ideology is operationalized through political left–right self-placement (11-point scale).

Results

Measurement Quality of the BSJO: Confirmatory Factor Analysis

To (re-)assess the reliability and validity of the BSJO scale, we apply CFA. When compared with the PCA used by Hülle et al. (2017), this approach has the advantage that it

(a) provides the opportunity to translate the underlying theoretical model into testable hypotheses; (b) relaxes the unrealistic assumption of unrelated latent concepts; and (c) allows a more stringent evaluation of model fit (Brown, 2006; Hu & Bentler, 1999). To enhance the comparability of our findings with the work of Hülle et al. (2017), we also reanalyze the data by means of PCA (O'Connor, 2000) and re-run CFA on the shortened eight-item survey battery (see [Supplementary Material](#)). All presented models are estimated by Mplus (version 8.3; Muthén & Muthén, 2017).

We start from a four-factor model (one factor per distributive principle) without cross-loadings or error correlations. The adequacy of the model is evaluated by (a) verifying whether the standardized factor loadings are larger than 0.40, and (b) assessing several indices that quantify the fit of the measurement model. As a measure of global fit, we inspect the root mean squared error of approximation (RMSEA), which expresses the discrepancy between observed covariances and the covariances implied by the linear model (should be below .06; Brown, 2006; Browne & Cudeck, 1993; Hu & Bentler, 1999). The Comparative Fit Index and the Tucker–Lewis Index (CFI and TLI) evaluate the fit of the hypothesized model relative to a more restricted baseline model (both should exceed 0.95; Brown, 2006; Hu & Bentler, 1999). In subsequent steps, we remove poorly performing items and implement model re-specifications that improve fit in a theoretical meaningful way. [Table 2](#) provides fit indices for each step in this model fitting procedure.

The CFA evidences that the four-factor solution is not acceptable. Item *E*—that was reformulated—loads poorly on the latent concept (0.31). In a second step this item is omitted from the analysis, which slightly improves model fit. After omitting item *E*, a second indicator of the need principle (item *J*) has a weak loading (0.37), but is preserved for reasons of model identification. Yet, modification indices suggest that especially the entitlement item *F* is contaminated by other justice principles (namely equality and need). As a result, this item is removed from the measurement model. This still does not yield adequate model fit and the modification indices suggest that item *I* of the equity principle cross-loads on both the entitlement and the equality factor. Consequently, it is also removed from the measurement model. Despite these re-specifications, the TLI is still low and the modification indices suggest that the two remaining items of entitlement also seem to load on the equity and equality principles, which is not theoretically defensible. The final measurement model, which necessarily eliminates the whole entitlement factor, describes the correlations between the indicators appropriately.

[Table 3](#) provides the parameter estimates for the final model. When compared with the findings of Hülle et al. (2017), our results sketch a far less optimistic perspective of the validity of the BSJO scale. CFA reveals that the correlations between the indicators do not follow the pattern assumed by the four-factor model in several respects. To begin with, the principle of entitlement cannot be properly distinguished. The indicators are contaminated by the other justice principles, showing that entitlement is not a distinctly measurable factor (reanalyses of the SOEP-IS and ALLBUS data yield similar findings; see [Supplementary Material](#)). The measurement properties of the indicators for the three principles are not optimal either. Various indicators have weak factor loadings and, because items are excluded, some latent concepts are measured by means of two items only, which is far from ideal for scale validation.

Table 2
Fit Indices of the Measurement Models Obtained Through CFA for ESS-Belgium 2019

	X^2	ΔX^2	df	Δdf	CFI	ΔCFI	TLI	RMSEA	$\Delta RMSEA$	Model changes
Model 1	416.441	—	48	—	0.828	—	0.764	0.066	—	
Model 2	360.841	-55.600	38	-10	0.840	0.012	0.769	0.069	0.003	-item E
Model 3	219.510	-141.331	29	-9	0.889	0.049	0.828	0.061	-0.008	-item F
Model 4	146.652	-72.858	21	-8	0.915	0.026	0.854	0.058	-0.003	-item I
Model 5	36.265	-110.387	11	-10	0.976	0.061	0.954	0.036	-0.022	-items D and L

Note. X^2 = Chi-square value of the measurement model; ΔX^2 = change in chi-square model in comparison to the previous measurement model; df = degrees of freedom of the measurement model; Δdf = change in degrees of freedom in comparison to the previous measurement model; CFI = comparative fit index of the measurement model; ΔCFI = change in the CFI value in comparison to the previous measurement model; TLI = Tucker-Lewis index of the measurement model; RMSEA = root mean square error of approximation of the measurement model; $\Delta RMSEA$ = change in RMSEA value in comparison to the previous measurement model; “- item” refers to the elimination of an item with a specific code from the measurement model.

Table 3.
Factor Structures and Standardized Loadings on the Basis of the Confirmatory Factor Analyses on the ESS-Belgium Data (N = 1764)

Item code	Equality	Need	Equity
C	0.755	—	—
K	0.633	—	—
G	0.617	—	—
E	—	—	—
J	—	0.427	—
A	—	0.530	—
B	—	—	0.482
I	—	—	—
H	—	—	0.534
D	—	—	—
L	—	—	—
F	—	—	—
r need	0.497	1	—
r equity	-0.086	0.327	1

Note. “r” refers to the correlation between justice principles.

Using Single Items Instead of Latent Concepts: Construct Validity

In contrast to the main questionnaire of ESS that only contains four BSJO items (items K, E, B, and D), the Belgian ESS data contains all 12 items, which allows us to investigate the implications of using single items instead of latent factors. First, it should be noted that the items included in the main questionnaire seem to capture specific

aspects of the justice principles, as they are not always clear-cut indicators of the four principles. Item E (representing need) is precisely the indicator that was omitted in the CFA, due to a weak factor loading. Item K loads sufficiently strongly on the equality factor but, based on our analysis, item C would have been a better candidate to represent the concept of equality (see also analyses SOEP-IS and ALLBUS in [Supplementary Material](#)). Item B does load on equity, but the loading (0.48) is not particularly strong and reveals a large degree of random measurement error. The quality of the entitlement item D is hard to evaluate, since an acceptable factor solution could not be formulated.

These results cast doubt on the validity of some of the single items selected in ESS to measure the justice principles or at least show that they capture specific aspects of each of the justice principles. To determine the implications of using the single items as indicators for the justice principles per se (as many researchers will), we compare relevant explanation models using single items versus latent factors as dependent variables (see [Table 4](#)). This test uses Structural Equation Modeling, so that it is possible to take into account the measurement models for the latent variables (incorporating random measurement errors) and to estimate coefficients for all three justice principles simultaneously. The parameter estimates are based on standardization of the dependent variable and the metric independent variables. The dummy variables are not standardized, so that these coefficients refer to the number of standard deviations by which a particular category differs from the reference group.

For the principle of equality, both approaches yield similar results in terms of the significance of parameters. However, the strength of the effects differs more profoundly. Although age has a stronger impact for the single item, the parameters for the higher educated, those who perceive their financial situation to be very difficult, and the self-employed are considerably larger for the latent variable. Although item K was not the most clear-cut and highest loading indicator of the equality-principle, there is strong conceptual overlap between the formulation of the single item and the theoretical content of the latent concept, which might in part explain the relatively equivalent results. The differences are clearest in the case of need. The only similarity is that Francophone Belgians and left-wing individuals favor need-based distribution more irrespective of the measurement, but even for these variables the strength of the relationships differs. When single item E is used, strongest support for need is found among older respondents, the self-employed and unemployed individuals. When need is measured as a latent variable, the lowest subjective income group shows much higher support (0.07 vs. 0.76) for the principle of need (while no effect of age or occupation is detected). These differences might arise because the items capture different conceptualizations of the need principle. Although item E in ESS mentions that people in need should receive help even without contributing to society, the latent concept comprises two items that express more vague support for alleviating basic needs. Consequently, the principle of need seems to be interpreted differently when measured through the single item included in the main questionnaire of ESS than when measured by the other two items. Regarding the principle of equity, although right-wing respondents support reciprocity-based distribution more for both measurements, the regression coefficient is twice as large for the latent variable (0.10 vs. 0.23). The relationship with gender also differs, as men show much higher support for equity when inspecting the latent variable. Overall results are nevertheless relatively similar for equity, which might in part

Table 4.

Standardized Parameters of the Structural Equation Models for the Single Items (N = 1677) and Latent Concepts (N = 1678) of the Distributive Principles (ESS-Belgium)

	Single item equality	Latent concept equality	Single item need	Latent concept need	Single item equity	Latent concept equity
Gender						
Woman (ref.)						
Man	-0.135**	-0.179***	0.008	-0.090	0.110*	0.226**
Age	0.056*	0.026	0.126***	0.030	0.012	0.049
Education						
Lower (secondary)	0.154*	0.168*	0.064	-0.148	0.047	0.148
Higher secondary (ref.)						
Tertiary	-0.252***	-0.454***	0.175**	-0.011	-0.034	-0.014
Subjective income						
Comfortable (ref.)						
Coping	0.191***	0.221***	0.074	-0.099	-0.060	0.128
Difficult	0.255***	0.388***	0.030	0.174	0.027	-0.116
Very difficult	0.243	0.325*	0.067	0.759***	-0.091	-0.062
Occupation						
Service class	-0.196	-0.048	0.169	0.342	-0.091	0.069
Blue collar (ref.)						
White collar	-0.075	-0.085**	0.015	-0.022	0.014	0.034
Self-employed	-0.215*	-0.370**	0.258**	-0.001	0.135	0.216
Unemployed	-0.075	0.000	0.278*	0.245	0.045	0.065
Retired/inactive	-0.141	-0.119	0.068	0.021	0.020	-0.050
Region						
Flanders	-0.324***	-0.258***	-0.123*	-0.201*	-0.041	-0.057
Francophone						
Belgium (ref.)						
Left-right placement	-0.131***	-0.151***	-0.161***	-0.090*	0.099***	0.225***

Note. For both the single items and the latent concepts, the regression coefficients were estimated for the three dependent variables simultaneously through structural equation modeling. The structural equation model with the single items obtains perfect fit with the data. The fit of the structural equation model with latent concepts is: $\chi^2 = 157.584$; $df = 67$; CFI = 0.942; TLI = 0.897; RMSEA = 0.028. Only the TLI of this model is slightly too low, but this might be related to high model complexity through the inclusion of many dummy variables. The modification indices do not reveal local misfit or theoretically defendable alterations that would ameliorate the fit substantially.

* $p \leq .05$;

** $p \leq .01$;

*** $p \leq .001$.

be related to the similar conceptual interpretation of the item B and latent concept in terms of proportionality and self-responsibility.

The observed differences between single items and latent concepts do not imply that the validity of these indicators is problematic per se. However, these results evidence clearly that the single items cannot be taken as pure and internally consistent reflections of the justice principles. The items capture particular aspects of the justice principles, and users of these items should be aware of their conceptual and empirical distinctiveness.

Discussion and Conclusion

Our results cast several doubts on the claim that the BSJO items are internally consistent and clear-cut measurements of the four abstract principles of social justice. First, using CFA instead of PCA (see [Hülle et al., 2017](#))², our study reveals that the proposed four-factor model is not able to describe the observed correlational structure. The principle of entitlement could not be recovered and also for the three other factors, items had to be deleted or model respecifications were necessary. These issues are not related to cross-cultural differences in interpretation of the items, since measurement problems appear to the same extent in the German datasets as in ESS-Belgium (see [Supplementary Material](#)).

These results have important repercussions for future social justice research. First, the single items selected in the ESS main questionnaire might be appropriate indicators to reflect the equality and equity principles. In the case of need and entitlement, the situation is more complex. The ESS item for need yields markedly different relationships with social structural and ideological variables, which evidences that it captures a specific aspect of need-based reasoning rather than the abstract principle of need per se. ESS users should be aware of this potential mismatch between empirical content and theoretical concept, and of the distinct conceptual interpretation of the specific item.

Our analysis also has broader implications for the conceptualization and measurement of justice orientations that reach beyond the ESS items. First, we are not able to distinguish the entitlement principle. This could be due to unclear item formulation, but might also reflect that citizens do not perceive entitlement to be a distinct distributive principle. The three classical principles –equality, equity and need ([Deutsch 1975](#))—are easier to retrieve in opinion data, probably because these dimensions are more explicitly crystallized in people's attitudes. This might also be related to presence of these three types of justice as foundational principles of the welfare states ([Clasen and van Oorschot, 2002](#)), unlike the principle of entitlement.

Second, the differential functioning of particular items for need in the BSJO scale sheds light on conceptual ambiguity in its operationalization. Although in the domain of the welfare state, need-based distribution typically implies a limited type of redistribution that installs means-tested benefits and encourages private insurances ([Arts and Gelissen, 2001](#); [Clasen and van Oorschot, 2002](#); [Esping-Andersen, 1990](#)), the BSJO need items refer to a more generous type of welfare state that provides a basic provision level for all citizens. Instead of residualism or selectivism, this formulation entails a rather extensive redistribution and also appeals to the principle of equality (as shown by the strong correlations between need and equality). To overcome this conceptual ambiguity, item E was formulated in a more outspoken manner in ESS. Yet, this adaptation resulted in low internal consistency with the other items. In order to differentiate more clearly among the distributive justice principles, a stricter operationalization of the need principle is warranted.

This research note revisited the factor analytic approach on which the BSJO scale was developed ([Hülle et al. 2017](#)). Yet, this is by no means the only useful perspective on measurement quality. Our contribution does show that the BSJO scale items do not function as internally consistent indicators that can be subsumed under a latent variable

²Yet, even PCA on the full ALLBUS and SOEP-IS datasets (instead of on the subset of working population) indicates measurement issues (see [Supplementary Material](#) for a more detailed discussion).

representing a justice principle as such. Scholars should hence be careful treating the items as unambiguous indicators of the more encompassing latent concepts. Other types of analyses on the basis of these data might nevertheless still be appropriate (e.g., using person-centered approaches or focusing on single dimensions of justice principles) and can still yield meaningful insights in citizens' opinions regarding social justice. Besides the empirical and statistical arguments, theoretical considerations should have a prominent place in discussions on measurement. In this sense, it is noteworthy that although the need item included in the main questionnaire of ESS might be inappropriate from the perspective of factor analysis, conceptually it comes closest to the principle of need of the three items. The item for equity included in the ESS is both empirically appropriate and theoretically credible, as it consistently loaded strongly and connects closely to the idea of proportionality and self-responsibility. For equality, item C (equal living conditions) appears to be a better candidate to represent the concept, as it both empirically and conceptually represents the equality principle. Although the BSJO scale and the ESS-items should hence certainly not be discarded, future users should become aware of the particular interpretations of these items.

Overall, our analyses confirm that preferences for justice principles are complex, multidimensional, and interrelated, which makes it intricate to construct a measurement scale that unambiguously distinguishes all the different justice principles. In this regard, although this study indicates limitations of the BSJO scale, it has nevertheless important merits as one of the only systematized attempts to operationalize support for the principles of equality, equity, and need. Rather than disregarding the BSJO scale entirely, it could be improved to further disentangle preferences for the justice principles on the basis of theoretical reflections and empirical tests. The findings presented in this paper offer a point of departure.

Supplementary Data

[Supplementary Data](#) are available at *IJPOR* online.

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Biographical Notes

Arno Van Hootegeem is a Doctoral Researcher at the Centre for Sociological Research (KU Leuven), where he is conducting a project on public opinion towards distributive justice. His PhD fellowship was awarded by Research Foundation Flanders (FWO). Other research interests concern welfare attitudes and anti-refugee sentiments.

Bart Meuleman is Professor at the Centre for Sociological Research at KU Leuven. His research focuses on cross-national comparisons of value and attitude patterns, such as ethnic prejudice, egalitarianism, and support for the welfare state. He has a special interest in the application of multilevel modeling and structural equation modeling on comparative survey data. His research was published in, among others, *Annual Review of Sociology*, *Social Science Research*, *European Sociological Review*, *Public Opinion Quarterly*, *Journal of Cross-cultural Psychology*, and *Journal of European Social Policy*.

Koen Abts is Assistant Professor at Tilburg University and research fellow at the Institute of Social and Political Opinion Research (ISPO-KU Leuven), where he is affiliated to the Belgian National Election Study (BNES). In his PhD dissertation, he examined the relationship between social resentment and ethno-populism. This research was awarded the Frans Van Cauwelaert prize 2014. His current research interests include populism, welfare state attitudes, radical right parties, resentment, and cleavage theory.