Revisiting the Middleton Alienation Scale: In Search of a Cross-Culturally Valid Instrument

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The article revisits the well-established Middleton alienation scale from a cross-cultural perspective. Contrary to previous research, it is assumed that the scale consists of two dimensions: anomie and alienation. Confirmatory factor analysis, multigroup invariance, discriminant validity tests, and Bayesian structural equation modelling (BSEM) are employed on two separate datasets: World Values Survey (WVS) data (Russia and Kazakhstan) and data from the Euromodule (Slovenia, Germany, Hungary, Spain, Switzerland, Austria, Turkey, and South Korea). Full metric invariance is reached in Slovenia, Germany, Switzerland, Austria, Turkey, and South Korea in the Euromodule dataset and in Russia and Kazakhstan in the WVS data when using the exact invariance approach, and scalar invariance is achieved for Russia and Kazakhstan when using BSEM. In most of the European countries, anomie relates distrust, whereas alienation is associated with dissatisfaction with life and unhappiness.

Keywords: alienation; anomie; exact measurement invariance; approximate measurement invariance; discriminant validity

1 Introduction

One of the most challenging endeavours in social sciences is operationalising classical abstract sociological constructs such as alienation and anomie. Doing so in a cross-cultural context becomes even more complicated.

In this paper, I address issues of measurement invariance and construct validity of the Middleton scale (1963), which is one of the most established scales for measuring alienation and anomie (Robinson, 1973). In addition, this is one of the few scales based on the well-known elaborated operationalisation of alienation proposed by Seeman (1959). The latter makes the scale more theoretically grounded compared with other scales, in which the selection of items appears to be adhoc (cf., Dean, 1961; Srole, 1956).

However, in the literature, we observe a confusing treatment of the scale; some authors, such as Middleton, consider it an alienation scale (Brannen & Peterson, 2009; Seeman, 1975), while others view it as a scale measuring anomie (Austin & Stack, 1988, p. 358; Huschka & Mau, 2006, p. 470). The authors provide little theoretical or empirical

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evidence for treating the scale as a measurement of anomie or alienation. Moreover, the scale lacks validity checks (Robinson, 1973, p. 249).

Both anomie and alienation are too abstract concepts to be measured directly by one observed variable and are predominantly operationalised by several items. For example, the initial anomia scale that Srole used consisted of five items (Srole, 1956), while Dean's alienation scale measures 24 items (Dean, 1961), and McClosky and Schaar's anomie scale contains 11 items (McClosky & Schaar, 1965).

Several attempts were made to study anomie and alienation across countries (e.g., Furnham, 1984; Zick, Küpper, & Hövermann, 2011; Huschka & Mau, 2006, pp. 478–479), regions (e.g., Blank, 2003; Kühnel, Mays, & Fernández, 2009), or timepoints (e.g., Kühnel et al., 2009; Legge, Davidov, & Schmidt, 2008).

Since anomie or alienation cannot be captured by a single observed indicator, to make meaningful comparisons across countries, it is highly advisable to ensure that the measurement structures, including the latent factor or factors and observed items, are stable across countries and time points (or, in other words, invariant) (van de Schoot, Schmidt, de Beuckelaer, Lek, & Zondervan-Zwijnenburg, 2015, p. 2).

Based on the literature review, I hypothesise that unlike stated in past studies, Middleton's scale is not necessarily unidimensional. I argue that the Middleton scale comprises

two diverse social phenomena. The first can be described by the concept of anomie in terms of Merton (2006 [1968]). The second stands for alienation, partially in accordance with Marx (1844) and Travis (1993).

I consider that both anomie and alienation could be more typical in some societies and less in others. Thus far, alienation has been studied predominantly in Western societies (especially in the US, where most of the existing alienation and anomie scales were introduced, e.g., Dean, 1961; Middleton, 1963), whereas the concept of anomie more frequently applies to societies in transition (e.g., Heins, 1994; Sztompka, 2000). If this is true, testing whether the Middleton scale is invariant across different countries shaped by different structural factors is particularly relevant. That is why I use two datasets to represent a broader range of societies.

Most recently, variations of the Middleton scale were used in the World Values Survey (WVS) conducted in 2011 in Russia and Kazakhstan (Inglehart et al., 2014) and in the "Euromodule" project conducted in 1999–2002 in Slovenia, Germany, Hungary, Spain, Switzerland, Austria, Turkey, and South Korea (Zapf et al., 2004)[1]. Therefore, different societies are represented in the datasets: the stable democracies and affluent societies in Western Europe, Eastern European countries which underwent significant social transformations at the end of 1980s and first half of the 1990s, and Asian societies where collectivist values prevail (e.g., Hofstede, Hofstede, & Minkov, 2010). In the latter, alienation and anomie could present a different meaning than that in the Western cultures in which these concepts were developed. Though nearly a 10-year difference separates WVS and the Euromodule, no other data is available for my research goals. The two datasets are analysed separately.

The object of the article is twofold: first, to explore the dimensionality of the Middleton scale across countries and to check its measurement invariance across countries for each of the datasets and, second, to check for the discriminant validity of the scale.

First, this article is of interest to researchers studying anomie and alienation, since it addresses issues of what the Middleton scale measures, whether the scale is applicable for cross-cultural research, and the level of comparisons the scale allows. In addition, the article provides suggestions on possible improvements to the scale.

Second, the article can be useful for researchers who test for measurement invariance. A less established and researched scale was selected (until now, a vast number of studies on measurement invariance was performed on Schwartz's values, e.g., Cieciuch, Davidov, Algesheimer, & Schmidt, 2018; Schwartz et al., 2012). Furthermore, since scalar invariance is difficult to achieve, the author, in addition to the exact invariance measurement using multi-group confirmatory factor analysis (MGCFA), applies Bayesian structural equation modelling (BSEM) to check for invariance.

Bayesian structural equation modelling was found to reveal more encouraging results regarding measurement invariance and allow more cross-cultural comparisons (Cieciuch, Davidov, Schmidt, Algesheimer, & Schwartz, 2014; Zercher, Schmidt, Cieciuch, & Davidov, 2015); at the same time, insufficient evidence exists regarding how the results of approximate invariance testing, such as BSEM, compare to exact measurement invariance testing, such as MGCFA (Cieciuch et al., 2014). In addition, the paper invites researchers to combine measurement invariance tests with other validity tests which better reveal the psychological properties of a scale. The latter can make an article less technical and thus more interesting for a broader audience and can provide additional information on how to improve a scale in the future.

The paper is structured as follows: The first sections present the Middleton alienation scale and its versions implemented in the WVS and the Euromodule. The following section addresses the theoretical reasoning on why the two-dimensional version of the scale is preferred. Afterwards, a set of hypotheses for discriminant validity is formulated to check whether a single concept or two distinct concepts are measured by the Middleton scale. The subsequent sections describe the method, confirmatory factor analysis results, checks for configural and metric invariance, and discriminant validity. The latter section is followed by tests of scalar invariance and an application of BSEM. Finally, conclusions are drawn regarding the Middleton scale from a cross-cultural perspective. Suggestions are offered for improving anomie and alienation measures, and directions for further research are discussed. The study is placed within the perspective of measurement invariance research.

2   Theoretical Problem

In this section, I address the controversy found in the literature: whether Middleton's scale captures anomie, alienation, or both. I present the scale and its variants used in the WVS and the Euromodule data sets. Additionally, I discuss for which societies the scale is applicable and whether it can be used broadly in cross-country research. I conclude the section by formulating a set of hypotheses for a discriminant validity test.

2.1   The Middleton Alienation Scale

The Middleton alienation scale is one of the most well-known scales for measuring alienation (e.g., Robinson, 1973). It is one of the few scales created upon the operationalisation of anomie proposed by Seeman (1959).

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[1]In the Euromodule project, data were also collected for Sweden. However, they are not included in the GESIS data archive (Zapf et al., 2004).

Seeman used five theoretical constructs to characterise alienation: powerlessness, meaninglessness, normlessness, isolation, and self-estrangement.

Powerlessness represents individuals' perceived ability to influence socio-political events. Meaninglessness denotes a feeling of confusion regarding what individuals should believe and which standards should guide their decision-making. Normlessness is based on individuals' agreement with the statement that one should use socially unapproved means to achieve the high goals established by society. Isolation indicates alienation from the societal goals and standards, whereas self-estrangement represents individuals' inability to find self-rewarding activities (Seeman, 1959, pp. 785–790).

Middleton was the first author to operationalise Seeman's facets of alienation. However, Middleton substituted "isolation" for two other constructs: "cultural estrangement', capturing the degree of acceptance of popular culture, and "social estrangement", measuring the perceived loneliness and estrangement from the society. He included also the construct "estrangement from work", which he believed to be similar to "self-estrangement" and was aimed to tap into Marx's concept of alienation. The latter represents the inability of someone to realise his or her human capacities, which results in estrangement from oneself (Middleton, 1963). The definitions of powerlessness, meaninglessness, and normlessness are identical to those provided by Seeman.

It is important to note that Middleton introduced his measure as an exploratory one, identifying that the scale's limitation is that only one indicator was used per construct. No data on the pre-test was provided. The sample consisted of a random sample of 256 respondents and an additional sample consisting of Afro-Americans (N=50 in addition to the 49 Afro-Americans within the initial sample) in a central-Florida city (Middleton, 1963). Respondents were provided two response options whether they generally agree or disagree with the statements. The results were as follows: five of the proposed indicators were found to be highly intercorrelated, whereas cultural estrangement was not closely related to the other indicators (Middleton, 1963, pp. 973–977). This indicator was not used in the subsequent studies, including the Euromodule and the WVS.

In the Euromodule and WVS, the scale was applied with some modifications regarding the sets of indicators, their order, and the questions' wording (see Table 1). It is important to mention that the items in the regional sample for Russia and Kazakhstan of the World Values Survey were taken from the Euromodule project[2]. Let us now introduce the initial Middleton scale and its modifications.

The initial Middleton scale included six positively formulated items without negatively formulated items. This could result in acquiescence bias (McClendon, 1991); however, the same is true for most items capturing anomie and alienation

(e.g., Robinson, 1973; Seeman, 1991). The items varied in their length and complexity. Two items, "estrangement from work" and "meaninglessness", had a double stimulus. On the one hand, a double stimulus could introduce a particular situation or condition (which could be the case with the indicator of meaninglessness, in which the two sentences are semantically similar to each other: "Things have become so complicated in the world today that I really don't understand just what is going on"). On the other hand, it could lead to bias, since the portion of the statement to which the respondent would reply could be unclear. This could be especially problematic in the case of "estrangement from work" ("I don't really enjoy most of the work that I do, but I feel that I must do it in order to have other things that I need and want"): it is not obvious whether the respondent agrees with the statement that one does not enjoy the type of work one does or the claim that work is necessary to obtain what one wants. The latter statement is most likely to be answered affirmatively. Such a formulation could increase the overall agreement with the statement.

2.2 Modifications of the Middleton Alienation Scale

In the Euromodule and WVS, the Middleton alienation scale was significantly modified save for the indicator of social isolation[3]. No information on the pre-tests and rationales for changes are available. The number and order of the indicators, as well as the wording, were altered. No indicator of cultural estrangement was used. In the Euromodule, an additional positively formulated indicator of optimism was added[4].

In general, the original Middleton scale contains more cognitive than behavioural components compared with its subsequent modifications; this could increase the individuals' agreement with the scales. Let us now compare the items of the three scales.

The indicator of powerlessness in the WVS was closer to the original scale than was that in the Euromodule. The latter

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[2]A variation of the Middleton scale was brought into the regional module of the World Value Survey (WVS) for Russia and Kazakhstan by C. Swader and L. Kosals. They implemented a simplified version of the scale previously used in the "Euromodule" project. The Regional Module of the WVS was conducted by the Laboratory for Comparative Social Research (National Research University Higher School of Economics) in 2011.

[3]Concepts are predominantly treated in accordance with Seeman (1959). However, I label "isolation" as "social isolation" to differentiate it from "self-estrangement", since the former denotes isolation from the society, and the latter a self-conscious choice to isolate oneself from the society. Besides, I use the label "job dissatisfaction" instead of "estrangement from work" because it better captures the meaning of the item.

[4]The item "I am optimistic about the future" was excluded from the subsequent analysis of the Middleton scale (same as in Huschka & Mau, 2006, p. 478).

Table 1

Indicators of the Middleton Scale and Its Variations Used in the Euromodule and the World Values Survey

Original Middelton Scale	Euromodule	World Value Survey
Powerlessness		
There is not much that I can do about most of the important problems that we face today (1)	I cannot influence most of today's problems (1)	I don't have enough possibilities to make an influence on solving the problems we all face today (1)
Meaninglessness		
Things have become so complicated in the world today that I really don't understand just what is going on (2)	Life has become so complicated today that I almost can't find my way (4)	Life has become so difficult that I often don't have any idea what I should do (3)
Normlessness		
In order to get ahead in the world today, you are almost forced to do somethings which are not right (3)	In order to get ahead nowadays you are forced to do things that are not correct (6)	In order to move forward people often have to break rules (4)
Cultural Estrangement		
I am not much interested in the TV programs, movies, or magazines that most people seem to like (4)	(not used)	(not used)
Social Isolation (Social Estrangement)		
I often feel lonely (5)	I often feel lonely (2)	I often feel lonely (2)
Job Dissatisfaction (Estrangement from work)		
I don't really enjoy most of the work that I do, but I feel that I must do it in order to have other things that I need and want (6)	I don't really enjoy my work (3)	I don't like my job (5)
Optimism		
(not used)	I am optimistic about the future (5)	(not used)

The order of indicators of each scale is given in brackets. Concepts are predominantly treated in accordance with Seeman (1959). However, I label "isolation" as "social isolation" to differentiate it from "self-estrangement", since the former denotes isolation from the society, and the latter—a self-conscious choice to isolate oneself from the society. Besides, I use the label "job dissatisfaction" instead of "estrangement from work" because it better captures the meaning of the item.

can be interpreted as a degree of individuals' mastery over personal problems but is unrelated to general societal issues ("I cannot influence most of today's problems" rather than "the problems that we [all] face today"). Compared with the original scale, the attribute "important" was excluded in both later versions of the scale, which could increase the acquiescence with the item.

The indicator capturing meaninglessness in the Middleton scale refers rather to the cognitive than the behavioural component ("...I really don't understand just what is going on"), whereas the scale in the WVS uses evaluation of an action ("...I often don't have any idea what I should do").

Important modifications were performed to the indicator of normlessness. In the original scale, a more careful wording was used ("you are almost forced to do some things which are not right"). In the Euromodule, the wording

is shorter and more straightforward ("you are forced to do things that are not correct"). In the WVS, the modification is most significant. Instead of an action tendency, behavioural intentions were used ("have to break rules"); "you" was substituted for "the people". The original item from the Middleton scale could involve less social desirability than do its modifications. The item used in the WVS is most different from the other two versions of normlessness.

The indicator of "estrangement from work", the most problematic in the initial scale, was substituted for more straightforward items, including one stimulus—dissatisfaction with the work (Euromodule) or the job (WVS). It is important to keep in mind the differences between "work" and "job": "job" indicates a regular, paid position, whereas 'work' means an activity, task, duty, or function one performs and is more general (Merriam-Webster,

2019a, 2019b).

However, it is debatable whether the indicator of job dissatisfaction truly taps into a measurement of alienation—it appears to be closer to a measurement of life satisfaction rather than Marx's alienation.

Before analysing how the Middleton scale functions, it is important to discuss what it measures. To do so, one must address the two concepts that the scale is intended to measure (as a whole, as one of the latent constructs, or as an indicator): alienation and anomie.

2.3   Theoretical Background of the Middleton Scale: Anomie and Alienation

To begin, both Seeman, who proposed the conceptualisation of alienation, and Middleton, who developed its operationalisation, considered anomie an indicator of alienation. In the initial article, Seeman indicated that anomie is captured by the construct of normlessness (Seeman, 1959, pp. 787–788). Let us now address the concepts of anomie and alienation.

Anomie is a concept introduced to sociology by Durkheim in 1893 to describe one of the abnormal types of division of labour which could occur when labour division does not produce solidarity (Durkheim, 1996 [1893]). He later implemented the term to denote a type of suicide caused by lacking normative regulation. This occurs when society is incapable of setting limits on the endlessly growing desires of the people (Durkheim, 1912 [1897]).

The concept was further developed by Merton, who related anomie to the conflict between the culturally defined goals and the institutionalised means of their attainment. An anomic situation results in the societal goals being too high for the individuals to achieve them with the means available within the economic system (Merton, 2006 [1968]). From Merton's perspective, these goals are mutual for all social classes; thus, lower classes experience a higher social tension, since they have fewer resources to attain them (Merton, 2006 [1968], p. 276).

He suggested five modes of individual adaptation to the situation of anomie. Of relevance to us is innovation, which implies using non-institutionalised, deviant means to achieve the prescribed by the culture goals (Merton, 2006 [1968]). According to some scholars (e.g., Messner & Rosenfeld, 2013), only innovation can be considered a case of anomie.

The concept of alienation was introduced by Marx in the Economic and Philosophic Manuscripts of 1844. He described four types of alienation: (1) alienation of the worker from one's "species-essence" as a human being rather than as an animal, (2) alienation between workers while labour is being reduced to a commodity traded on the market, (3) alienation of the worker from the product owned by the capitalist class, and (4) alienation from the act of production, as the worker makes a meaningless activity and is not involved

in the entire process of production (Marx, 1844). Alienation according to Marx is typically linked to the economic sphere and particularly to self-estrangement and the lack of self-realization at work (Blauner, 1964; Hodson, 1996). However, authors such as Ollman considered alienation to capture a psychological condition—"the devastating effect of capitalist production on human beings, on their physical and mental states and on the social processes of which they are a part" (Ollman, 1976).

Seeman was one of the first scholars to use the concepts of anomie and alienation, initially rather separate concepts, together. However, it is questionable to what extent the two concepts fit together and describe the same phenomena. Next, I consider two theoretically plausible models (see Figure 1).

The first model (Figure 1a) suggests that alienation captures a single phenomenon comprised of powerlessness, meaninglessness, social isolation, normlessness, and job dissatisfaction in accordance with Seeman and Middleton. In other words, the corresponding indicators share a common variance that can be captured by one latent variable— namely, alienation. Anomie is captured by one of these subconcepts—normlessness.

The second model (Figure 1b) suggests that two different phenomena are measured by the Middleton scale—anomie and alienation. In proposing such a model, I follow Merton's anomie theory; anomie represents the discrepancy between the societal goals and available means for their attainment and corresponds to Merton's type "innovator". Powerlessness translates into the lack of ability to achieve the goals defined by culture, whereas normlessness denotes the disposition to break the rules to pursue the desired ends or to justify deviance. In this case, normlessness and powerlessness relate to each other. Their common variance is captured by a separate latent variable—anomie.

The second latent construct, alienation, captures the state when individuals do not feel themselves to be a part of society: they lack an understanding of what is occurring within the society, are deprived of social contacts, and are estranged from the work they do (e.g., Travis, 1993). This does not, however, transform individuals into delinquents or make them tolerant of deviant behaviour. According to the model, alienation is comprised of meaninglessness, social isolation, and estrangement from work or job dissatisfaction.

I suppose that the two-factor model is more plausible provided that 1) anomie and alienation are diverse concepts at the theoretical level, and 2) the indicators constituting the Middleton scale are rather diverse: some tap into sources of deviant behaviour or tolerance of such behaviour, as suggested by Merton, whereas others represent the lack of an individual's embeddedness within the society. Moreover, countries could differ in degree of anomie, but not alienation, and vice versa—in some countries, greater emphasis
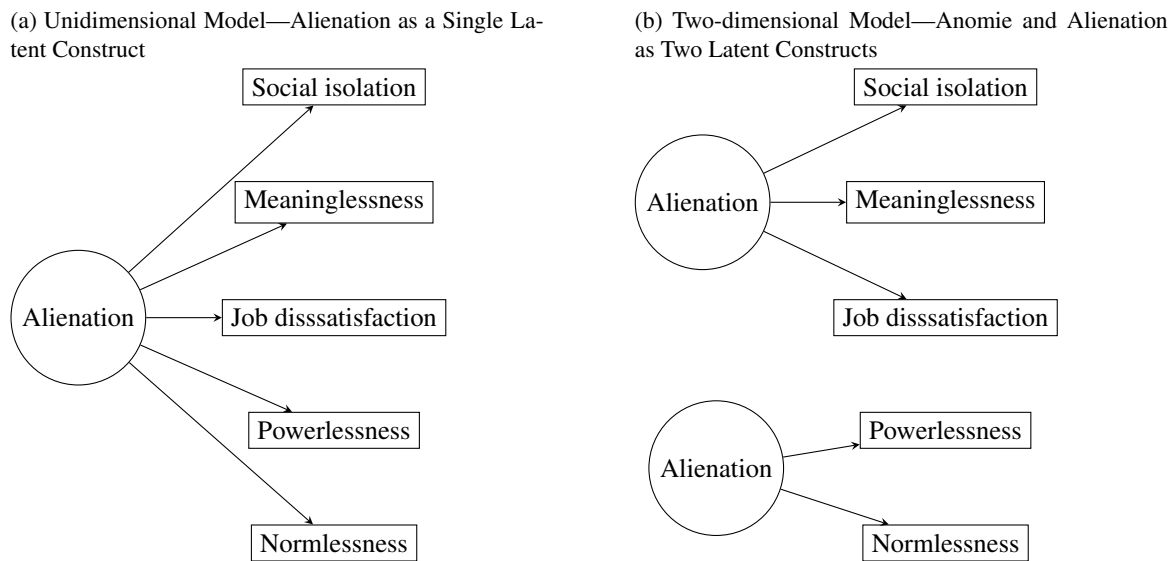
(a) Unidimensional Model—Alienation as a Single Latent Construct

(b) Two-dimensional Model—Anomie and Alienation as Two Latent Constructs

Figure 1. Two Theoretical Models of the Middleton Scale

is placed on the goals one is expected to strive for and less on the institutional possibilities of achieving such goals (e.g., Merton, 2006 [1968]; Messner & Rosenfeld, 2013), whereas other countries might vary in their degree of social cohesion (e.g., Delhey & Dragolov, 2016b) which can be seen as the opposite of alienation.

2.4   Is the Middleton Scale Universal?

The most important issue of any study implying comparisons is equivalence. We want to ensure that within- or between-group comparisons are meaningful: unintended variation does not result in over- or under-estimation of the effects (Davidov, Meuleman, Cieciuch, Schmidt, & Billiet, 2014; Harkness et al., 2010). In the proposed theoretical framework by von den Vijver (1998) for cross-cultural research, three types of bias (or the sources of non-equivalence) are formulated: construct, method, and item bias. Construct bias represents the theoretical validity, or whether the concept has a different meaning across cultures or its meaning is culture-specific. Method bias encompasses the incomparability of samples, differences in how the stimulus functions across cultures, and issues resulting from the administration of the study. Item bias relates to different anomalies occurring at the item level (Davidov et al., 2014; von den Vijver, 1998). Method and sample bias represent measurement validity and can be statistically accounted for (Davidov et al., 2014).

Although the focus of this paper is on statistical approaches to equivalence and does not involve the data-collection phase, I briefly discuss the issue of potential concept non-equivalence. In particular, one requires evidence that the concepts of anomie and alienation are capturing phe-

nomena present in the analysed contemporary societies.

Classical theories of anomie and alienation suggest the following. According to Durkheim, acute anomie is present in societies undergoing societal transformations followed by a rapid change of norms and values: the normative system is weakened, and the society is incapable of guiding individuals' conduct and limiting the ever-growing desires (Durkheim, 1996 [1893], 1912 [1897]). In economically developed societies, Durkheim expected some level of chronic anomie. He suggested that anomie is differently distributed in poor and rich countries: in poorer countries, people's desires do not increase as rapidly, since individuals earn much less (Durkheim, 1912 [1897], p. 337).

Merton claimed that the type "innovator", when individuals use socially unapproved means to achieve goals, is most widespread in societies such as the US, where it is crucial for everyone to be pecuniary successful (1968). This idea was further developed by (Messner & Rosenfeld, 2013). They claim that the American Ethos of success and its byproduct, the tolerance of deviance, make the US the country with the largest crime and incarceration rate among developed societies.

Overall, the concept of anomie was applied to study diverse societies: the affluent, such as the US (Messner & Rosenfeld, 2013; Srole, 1956), Germany (Legge et al., 2008), and post-communist societies that experienced a massive value transformation, such as the former Eastern Germany (Heins, 1994), Hungary (Vingender, 2001), Bulgaria (Genov, 1998), Ukraine (Golovaha & Panina, 2008), Russia (Krivosheev, 2004; Pokrovski, 2008), and Kazakhstan (Abbott & Wallace, 2012; Buckley, 1997).

By drawing upon Marx (1844), one can assume that alien-

ation functions differently in countries with a different value of human capital: the greater the value of human capital, the less alienated people are. Alienation studies are messy; to a large extent, these are theoretical papers (e.g., see a review by Seeman, 1975). If considering social cohesion to be the opposite of alienation, affluent European societies with existential security (or the "old" EU - 15members) are shaped by higher cohesiveness (Delhey & Dragolov, 2016b).

Alienation was operationalised and measured primarily in affluent societies, such as the US (Dean, 1961) and Western European countries (Lockerbie, 1993), but was hardly addressed in the post-Soviet or Eastern context (for an exception, see Heydari, Davoudi, & Teymoori, 2011, who measures alienation).

It is important to mention that cross-country comparisons of affluent countries and countries in transition in relation to anomie and/or alienation are rare (with the exception of Huschka & Mau, 2006; Rudnev, Lytkina, Davidov, Schmidt, & Zick, 2018). However, cases of transferring a scale or separate items into a different cultural context are not rare (e.g., Heydari et al., 2011).

Huschka and Mau, upon performing a factor analysis of the Middleton scale using the same Euromodule dataset, concluded that all items load on one factor and thus constructed an additive anomie index (Huschka & Mau, 2006, p. 476). Thus far, only Rudnev et al. (2018) addressed the issues of measurement invariance of a short version of McClosky and Shaar's alienation scale using the "Group-Focused Enmity Project" data for eight European countries, which included affluent old democracies and Eastern European countries. The scale was comprised of powerlessness, meaninglessness, and social isolation; no indicators of normlessness and job dissatisfaction were used. The authors found full metric invariance for seven countries, which allows one to compare countries based on unstandardised regression coefficients or to check for associations. Only the following pairs of countries were found to be comparable with one another on the level of anomie: Germany and Italy, Poland and France, and Poland and the UK.

Therefore, more evidence is needed regarding how the full version of Seeman's conceptualisation of alienation works and whether anomie and alienation can be studied from a cross-cultural perspective.

Using the two datasets allows us to study both anomie and alienation in different societal contexts: in affluent countries, in countries that experienced rapid social change and value breakdown in addition to a process of transforming the entire societal and political structures, and in Asian countries. However, to compare different countries, one should examine what the Middleton scale measures, whether it measures the same phenomena across different countries, and whether the results are comparable across countries. These are the issues I investigate in the empirical portion of this paper. In the last part of the theory section, I present the predictors of anomie and alienation that are later applied to a discriminant validity test.

2.5 Differentiating between Anomie and Alienation

In the article, it is assumed that anomie and alienation are two different factors of the Middleton scale, so it is important to test for discriminant validity beyond testing for dimensionality and measurement invariance. Following the approach of Datler, Jagodzinski, and Schmidt (2013), one can check for relationships with external variables that either predict or are outcomes of the constructs constituting a scale. If the two phenomena are different, covariates relate to one factor and not the other, and vice versa.

Anomie and alienation were found to be related to several different socio-demographic and attitudinal variables. Middleton discovered that indicators of his scale are strongly correlated with ethnicity and level of education. Afro-American citizens displayed a significantly higher level of alienation. In addition, Afro-American and white American citizens with higher education were less likely to experience alienation (Middleton, 1963). Lang (1985), on the contrary, found that people with higher education are more likely to experience alienation. Srole (1956), who applied the indicators of powerlessness, meaninglessness, social pessimism, and isolation[5], found a negative relationship between the overall additive index and the social economic status. In further research, significant negative correlations were found between alienation and occupational status, income, and education, in addition to a positive correlation with age (Seeman, 1991, p. 315).

However, confusion exists regarding which indicators were used to measure anomie and alienation. Most empirical researchers did not differentiate between anomie and alienation.

We derive the following hypothesis from classical theories of anomie and alienation and other sources to test for discriminant validity. Since secondary data analysis is performed, one is limited in the range of available indicators. Moreover, most similar indicators were selected across the two different datasets.

Generalised trust Teymoori et al. (2016) uses disintegration as a perceived lack of trust and erosion of moral standards to define one dimension of anomie. Levi (1996) wrote that the destruction of trust could result in anomie. However, distrust can be regarded also as a consequence of anomie. It is thus hypothesised that the more anomic individuals are, the more distrustful they are. Alienation is expected to have no effect on trust.

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[5]Elsewhere, we show that Srole measures alienation: Srole's scale has no indicators of anomie (Lytkina, 2014).

Life satisfaction As demonstrated by Osin (2009) on a Russian sample, life satisfaction is inversely related to alienation. Individuals experiencing high alienation are less satisfied with their lives and themselves. Although anomic individuals who cannot achieve their goals are more likely to be dissatisfied with their lives, this association is expected to be weaker.

Happiness Happiness also was found to be related to alienation: apathetic individuals are less happy (Osin, 2009). For anomie, the association with happiness is expected to be insignificant.

Satisfaction with the economic situation In line with the theories of anomie, individuals lack the material means to achieve their goals (Merton, 1968) or are burdened by endlessly growing desires which they cannot fulfil (Durkheim, 1912 [1897]). This explains why they are expected to be dissatisfied with their economic situation. However, objective deprivation also was found to be related to alienation (e.g., Srole, 1956). Alienation is expected to have a less significant effect on satisfaction with the economic situation than anomie.

Membership in organisations Alienated individuals are expected to be less involved in different social organisations (e.g., Zimmermann & Rappaport, 1988). Inversely, participation in social and political institutions is regarded as an indicator of social cohesion (Delhey & Dragolov, 2016a).

Voting Social isolation was found to be related to political apathy, including voting apathy (Dean, 1960, p. 188). One can assume that the more alienated individuals are, the less eager they are to vote. In the case of anomie, the evidence may be twofold: on the one hand, individuals are more likely to feel powerless, since they may not believe that the institutionalised means help them to achieve their goals. They may also consider politics to be no longer important (Messner & Rosenfeld, 2013, p. 82). On the other hand, they are less passive and unlike the alienated individuals may still use the institution of voting to achieve their goals.

I now introduce the research methodology.

3   Methods and Data

3.1   Participants

As mentioned above, two datasets representing the most recent usage of the Middleton scale are employed in the study. This allows one to obtain evidence from a vast range of countries so that the findings are the most convincing

should alienation and anomie be unique concepts. The countries in the sample are assumed to be different in the degree of alienation and anomie, since they represent affluent societies, countries that experienced a significant value transformation, and Asian cultures. The data from both datasets are analysed separately.

The first dataset was gathered within the sixth round (2011) of the World Value Survey (Inglehart et al., 2014), in which the Middleton scale was applied in the Russian (N=2,500) and Kazakh (N=1,500) regional modules.[6] The representative samples for both countries were drawn from the entire population of age 18 years and older in the form of face-to-face interviews. The second dataset is the "Euromodule" (Zapf et al., 2004). The research project focussed on topics such as individual living conditions, subjective well-being, and the quality of society from a comparative perspective (Delhey, Böhnke, Habich, & Zapf, 2001; Delhey & Newton, 2003). The data was gathered from 1999 to 2002 in the following countries: Slovenia (1999), Germany (1999), Hungary (1999), Spain (2000), Switzerland (2000), Austria (2002), Turkey (2001–2002), and South Korea (2001–2002). The surveys are representative of citizens aged 18 years and older, with sample sizes between 500 and 2,500 (see Appendix, Table 1). Interviews were conducted face to face in most countries and by telephone in Switzerland. Back translation was employed to assure the quality of translation from the language master questionnaire.[7]

3.2   Measures

The two versions of the Middleton scale comprise the indicators of powerlessness, meaninglessness, social isolation, normlessness, and job dissatisfaction, presented in a different order (see Table 1). It is hypothesised in the article that these indicators could measure not only alienation but both anomie and alienation. All items of the Middleton scale in the two datasets are measured using a four-point Likert scale without a middle category and recoded so that 1 represents the lowest degree of anomie or alienation, and 4 represents the highest degree of anomie or alienation.

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[6]The questionnaires are available at the World Values Survey webpage in the materials uploaded for separate countries (correspondingly, Russia and Kazakhstan). The data was acquired from the datasets for separate countries (Russia and Kazakhstan) from http://www.worldvaluessurvey.org/WVSContents.jsp [accessed: 10.10.2014]. However, now the data are no longer available there, but they can be requested from PIs mentioned for each country at http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp [accessed: 10.06.2019]. Upon agreement with a PI, I included the data containing the variables used in the article in the supplementary materials.

[7]The technique of back translation is now considered outdated. Better approaches have been suggested (cf., Harkness et al., 2010; von den Vijver, 1998).

To test for discriminant validity, the following indicators are used in the both datasets[8]: generalized trust (1 representing "most people can be trusted" and 0 representing "you can't be too careful in dealing with people"), life satisfaction (measured on a 10-point scale, with 1 being the lowest and 10 being the highest level of life satisfaction in WVS and on a 11-point scale with 0 being the lowest and 10 being the highest level of life satisfaction in the Euromodule dataset), happiness (measured on a 4-point scale, with 1 being the lowest level and 4 being the highest level of happiness), satisfaction with the economic situation (measured on a 10-point scale, with 1 being the lowest and 10 being the highest level of satisfaction in WVS and on an 11-point scale in the Euromodule 0 being the lowest and 10 being the highest level of satisfaction), membership in organisations (an index ranging from 0 [no membership] to 1 [membership in seven types of organisations] composed using a summated rating scale out of seven binary variables: membership in a trade union, political party, environmental association, charity association, church-related association, cultural group, and sports club), and voting (in which 1 represents voting and 0–non-voting)[9].

3.3 Procedure

In this article, I check for the dimensionality of the Middleton scale and configural and metric invariance and perform discriminant validity tests, which are followed by scalar invariance and approximate invariance tests using Bayesian SEM. Next, I describe the procedure in greater detail.

I first address the internal validity of the scale. To check for the structure of the data, I perform a correlation analysis with the Spearman formula, since the Middleton scale is measured using an ordinal scale with four categories. Afterwards, I check for internal consistency using Cronbach's alpha. The structure of the scale, as supposed, consists of more than one dimension. Furthermore, I perform a confirmatory factor analysis (CFA) (Brown, 2006) using MPLUS 7.1 software (Muthén & Muthén, 2012). The analysis is performed given the two theoretically plausible solutions—with one factor measuring alienation and two factors measuring alienation and anomie. Confirmatory factor analysis enables one to test the measurement model and particularly the relationship between the observed and latent variables (Brown, 2006, p. 2). In addition, I test whether the results are different if the variables are treated to be categorical.

I then check for all countries whether the two-factor solution is worse than the one-factor solution. To do so, I compare an unconstrained two-factor model with a constrained one, in which I fix the correlation between the factors (anomie and alienation) to one. The results are interpreted in the same manner that one would interpret differences in measurement invariance tests. Given that the samples are large ($N > 300$), as suggested by Cheung and Rensvold (2002) and Chen (2007), comparative fit index

(CFI) is employed to evaluate the results. A difference not larger than 0.01 indicates that the model fit does not deteriorate considerably.

For the countries where there is an improvement or no difference between the constrained and unconstrained models, multigroup comparisons for the two-factor model are performed to check for measurement equivalence across countries. Multigroup comparisons allow for checking whether the structure persists across countries and determining what type of cross-country comparisons one is capable of performing. In other words, one must ensure that the scale measures identical constructs with the same structure across countries (van de Schoot, Lugtig, & Hox, 2012). To do so, I check for configural, metric, and—later—scalar invariance.

Configural invariance suggests that each construct is captured by the same items (Davidov, Dülmer, Schlüter, Schmidt, & Meuleman, 2012; Zercher et al., 2015). Metric invariance implies that the measured construct has the same meaning across countries: a unit increase in the latent construct indicates the same across countries. It requires that the factor loadings be invariant across groups. Metric invariance enables one to compare covariances and unstandardised regression coefficients across countries (Steenkamp & Baumgartner, 1998), but it is uncertain whether the concept is measured on the same scale (Horn & McArdle, 1992; Steenkamp & Baumgartner, 1998). Scalar invariance is the highest level of invariance, which means that the observed mean differences in the items are not a product of differences in item functioning but are explained through the mean differences in the latent factor (Davidov et al., 2012). It requires that intercepts and factor loadings be equal across countries and allows one to compare countries on latent means (Steenkamp & Baumgartner, 1998). However, this level of invariance is often difficult to achieve (e.g. Pokropek, Davidov, & Schmidt, 2019).

For model estimation in multigroup comparisons with samples containing more than 300 respondents, it is advisable to use a combination of goodness of fit measurements (Cheung & Rensvold, 2002): comparative fit index (CFI), root mean square error of approximation (RMSEA), and the standardised root mean square residual (SRMR). A value of CFI greater than 0.95 (or at least above 0.90 as a soft crite-

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[8]For the full list of indicators, see Appendix, Tables A2 and A3.

[9]However, there were differences across the datasets. The indicator "Satisfaction with income / financial situation" was measured as satisfaction with the household's financial situation in WVS and as satisfaction with the household's income in the Euromodule. The indicator "voting" was measured as voting at parliament / presidential elections in general in the WVS (with three response options— never, usually or always) and as voting at the last parliamentary election in the Euromodule (yes or no). Life satisfaction and satisfaction with the income / financial situation were measured on a scale from 0 to 10 in the Euromodule, and from 1 to 10 in WVS; for more details see Tables A2 and A3 in the appendix.

rion), a value of RMSEA not larger than 0.08 with the upper bound of its confidence interval not higher than 0.10, and a value of SRMR less than 0.05 are considered sufficient goodness-of-fit measurements criteria (Geiser, 2013; West, Taylor, & Wu, 2012; Wu, West, & Taylor, 2009). Metric invariance is reached in comparison with the configural model when the CFI changes by no more than 0.01, which is followed by a change in RMSEA no larger than 0.015 or in SRMR no larger than 0.03. The requirements for scalar invariance are the same for CFI and RMSEA, whereas the change in SRMR should be no larger than 0.01 compared with the metric model (Chen, Sousa, & West, 2005).

After reaching metric invariance for a set of countries, one can compare regression coefficients between the groups. Therefore, I perform the discriminant validity tests, in which I use anomie and alienation to predict a series of attitudinal variables. One can claim that the two concepts are different in that one predicts a set of variables which is not predicted by the other, and vice versa (Datler et al., 2013). Afterwards, I check for scalar invariance.

Since the highest level of exact measurement invariance achieved is full metric invariance, as suggested by van de Schoot et al. (2013) and Davidov, Muthén, and Schmidt (2018), the approximate measurement invariance approach is used. Compared with the exact measurement invariance, the approximate measurement invariance can enable researchers to find a well-fitting model for the case when full scalar invariance cannot be achieved. In the exact measurement invariance approach, the parameters (such as factor loadings and intercepts) are constrained to be equal (their difference across groups is zero). Approximate measurement invariance allows for a small difference between the parameters. Therefore, a researcher selects between a model with a higher degree of approximate measurement invariance and model demonstrating a better model fit (van de Schoot et al., 2013). As suggested by van de Schoot et al. (2013), a series of models are run, beginning with a model with constrained and unconstrained intercepts with the Bayesian estimator. Different prior distributions of the intercept are used, with prior variance from 0.5 to 0.0005. To test metric and scalar invariance with the Bayesian estimator, stricter cut-off criteria are applied for convergence to reduce the precision bias (Chains=4, FBiterations = 20000, see van de Schoot et al., 2013). To estimate the models with the priors, less strict parameters are used to allow the models to converge (Chains = 5, Biterations = 500000 [15000]), Bconvergence = 0.01). The models are specified so that the latent means are fixed to zero and variance to one. Criteria for a suitable model are as follows: an insignificant posterior predictive p-value (ppp)—ideally approximately 0.5 (Gelman, 2013)—and a 95% credibility interval including a zero (van de Schoot et al., 2013).

3.4 Descriptive Account

The descriptive statistics for the five items used in both versions of the Middleton scale reveal a similar level of agreement with the items measuring meaninglessness, social isolation, normlessness, and job dissatisfaction in Russia and Kazakhstan in the WVS data set. Russia is somewhat higher than Kazakhstan regarding powerlessness (see Figure 2; for frequencies, see Table A4 in the appendix).

In the "Euromodule" dataset, the level of normlessness is significantly higher in Hungary, whereas the highest level of powerlessness occurs in Slovenia, Germany, and Spain. Turkey and South Korea demonstrate a higher level of agreement with all indicators as opposed to other countries—particularly, meaninglessness, isolation, and job dissatisfaction (for frequencies, see Table A5 in the appendix).

The correlation analysis for both Russia and Kazakhstan (see Table A6 in the appendix) reveals a significant connection between the indicators of meaninglessness and social isolation, and less strong positive correlations between normlessness and meaninglessness, powerlessness and normlessness, and job dissatisfaction and meaninglessness. The weakest correlations are between normlessness and job dissatisfaction and normlessness and social isolation.

In the "Euromodule" data, the correlation patterns are more diverse (see Table A7 in the appendix). In Hungary, the indicator of normlessness has low or insignificant correlations with most of the other measures of the Middleton scale. In Slovenia and Austria, powerlessness has the weakest correlations with the other indicators.

4   Results

Unlike Huschka and Mau (2006), we obtain different evidence on the dimensionality of the Middleton scale across the two datasets. Internal consistency using Cronbach's alpha is low for the five items constituting the Middleton scale in both Russia (0.338) and Kazakhstan (0.479). The scale performs somewhat better in the Euromodule data but still reveals evidence that a non-unidimensional model can be preferred for all the countries: Slovenia (0.565), Germany (0.597), Hungary (0.628), Spain (0.555), Switzerland (0.441), Austria (0.523), Turkey (0.621), and South Korea (0.614). Therefore, confirmatory factor analysis is performed to explore the possibilities of the one- and two-factor models for each country (see Appendix, Tables A8 and A9 for WVS and A11 and A12 for Euromodule). Its results reveal that for Russia and Kazakhstan in the WVS data and for Slovenia and Switzerland in the Euromodule data, two-factor models have significant improvements in model fit indices compared with one-factor solutions. In Slovenia and Switzerland in the Euromodule data and Russia and Kazakhstan in the WVS data, the two factors share less than 50% common variance. In other countries, the correlation between the two factors is higher.
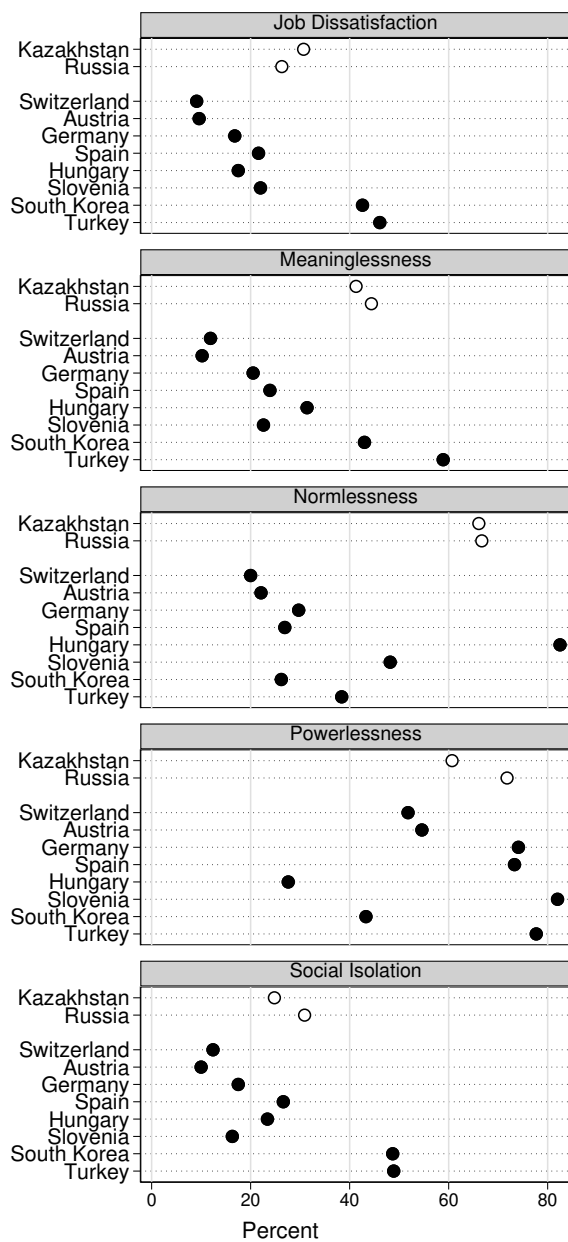
Figure 2. Percentage of Agreement with the Items Constituting the Middleton Scale. The overall agreement with the item here corresponds to a higher level of anomie or alienation. Since two different datasets are used, only comparisons between the countries within each of the datasets can be performed. Therefore, Russia can only be compared with Kazakhstan. Other countries can be compared with each other, but not with Russia and Kazakhstan.

Table 2

Results of the Measurement Invariance Tests for the Two-Factor Model in Russia, and Kazakhstan (World Values Survey)

Test results	Configural	Metric	Scalar
Chi-Square	29.242	33.948	65.494
df	8	11	14
p-Value	0.000	0.000	0.000
RMSEA	0.036	0.032	0.043
ΔRMSEA	-	−0.004	0.011
CFI	0.988	0.987	0.970
ΔCFI	-	0.001	−0.017
TLI	0.969	0.976	0.957
SRMR	0.017	0.020	0.027
ΔSRMR	-	0.003	0.007

To check whether a two-factor solution is significantly worse than a one-factor solution, the unconstrained two-factor model is compared with a constrained two-factor model, in which the correlation between the factors (anomie and alienation) is fixed to 1 (see Tables A10 and A13 in the appendix). The results are interpreted in the same manner that one would interpret measurement invariance tests. The unconstrained model performs significantly better for Russia and Kazakhstan in the WVS data and for Slovenia and Switzerland in the Euromodule data. For other countries, no difference exists between the constrained and unconstrained models, which allows us, given the described above theoretical reasoning, to check whether the two-factor model can be applied for the selected countries.

Upon the configural and metric invariance tests, the two-factor model proves to be comparable in Russia and Kazakhstan (see Table 2). Given that full metric invariance is achieved, we can compare the association between the latent factors and the external variables. The latter is required to check for discriminant validity.

In the Euromodule dataset, full metric invariance is achieved for most of the countries (see Table 3), with the exceptions of Spain and Hungary, which are excluded from the further analysis. Therefore, one can proceed with the discriminant validity tests for Slovenia, Germany, Austria, Switzerland, Turkey, and South Korea.

In the next step, a set of predictors is used in structural equation modelling across countries to determine whether anomie and alienation are distinct concepts (see Table 4). As we can see, some of the hypothesised associations are in accordance with the predictions, but the effects are not the same for the entire sample of countries.

In line with expectations, anomie predicts the lack of trust in several countries (significant negative relation in Russia, Slovenia, Germany, Switzerland, and Austria) and dissatis-

Table 3

Results of the Measurement Invariance Tests for the Two-Factor Model in Six Countries: Slovenia, Germany, Switzerland, Austria, Turkey, and South Korea (Euromodule)

Test results	Configural	Metric	Scalar
Chi-Square	116.893	173.195	643.684
df	24	39	54
p-Value	0.000	0.000	0.000
RMSEA	0.047	0.044	0.078
ΔRMSEA	-	−0.003	0.034
CFI	0.980	0.970	0.870
Δ CFI	-	0.01	0.1
TLI	0.949	0.955	0.856
SRMR	0.019	0.028	0.058
Δ SRMR	-	0.009	0.03

faction with the economic situation (significant negative relation in Russia, Slovenia, and Germany). However, alienation, not anomie, explains distrust in Kazakhstan (the more alienated individuals trust less). In addition, alienation predicts dissatisfaction with the economic situation in Slovenia (a slightly higher effect of alienation on satisfaction with the economic situation than of anomie), Switzerland (the effect of anomie is insignificant), and South Korea. Furthermore, in Germany and Switzerland, anomic individuals are less prone to vote.

Alienation predicts dissatisfaction with life (Russia, Kazakhstan, Slovenia, Germany, Switzerland, and South Korea) and unhappiness (except for Turkey and Austria, where the effects are insignificant). However, in Russia and Germany, anomic individuals are also less satisfied with life, though the effect size is lower than in case of alienation.

Additionally, in Austria, alienated individuals participate less in various types of organisations. In Germany and Switzerland, membership in organisations is explained by anomie, not alienation. Moreover, some effects are reversed: anomic individuals are more prone to participate in organisations in Austria; whereas in Kazakhstan, alienated individuals more frequently hold memberships of different organisations.

The results provide evidence that anomie and alienation are distinct concepts in most countries, except for Turkey, where no effects are significant. In Turkey, South Korea, and Kazakhstan, however, anomie does not predict any attitudinal variables; only key hypotheses regarding alienation are confirmed.

The difference in the predictive power of anomie and alienation across countries could be explained, for example, by the salience of anomie and alienation in those countries. However, such an assumption requires confirmation that we

can truly compare countries based on their levels of anomie and alienation. To do so, one must check for scalar invariance.

No scalar invariance is acquired using the exact invariance tests in the WVS and Euromodule data sets (see Tables 2, 3). To summarise, full metric invariance is achieved for Russia and Kazakhstan in the WVS and for Slovenia, Germany, Austria, Switzerland, Turkey, and South Korea in the Euromodule. Metric invariance supposes that one unit increase in any of the latent constructs has the same meaning in each country in each of the analysed datasets. It is a necessary prerequisite for comparing covariances and unstandardised regression coefficients across countries. However, a lack of scalar invariance does not allow us to compare the latent means among the countries, as we cannot claim that the constructs are measured on one scale. Therefore, we cannot conclude which countries are higher on anomie or alienation.

To solve this issue, approximate measurement invariance tests are performed using Bayesian statistics (for the results, see Tables 5, 6).

Full scalar invariance using the approximate measurement invariance approach (BSEM) is achieved for Russia and Kazakhstan in the WVS data set. Model F represents the best solution provided that the ppp is insignificant, the 95% credibility interval includes a zero, and the allowed difference between the intercepts is minimised ($\alpha = 0.005$). Therefore, allowing a difference of 0.005 between the intercepts enables us to have a model with an acceptable model fit. We can now compare the two countries: Russia is higher on both anomie (the means difference is 0.29* [0.14]) and on alienation (the means difference is 0.17* [0.09]).

In the Euromodule data, no scalar invariance is achieved using the BSEM. Even for Slovenia and Switzerland, where the two-factor model demonstrated a significantly better fit, the differences in the intercepts are too large for all the indicators (see Table 6). Although most of the models (except for Models F and G) contain a zero in the 95% credibility interval, the ppp value remains significant.

Therefore, we can compare the standardized regression coefficients and covariances, but not the mean scores of anomie and alienation across Slovenia, Germany, Austria, Switzerland, Turkey, and South Korea.

5 Discussion and Limitations

The results of the study are multifold. First, I address substantial and then methodological issues.

Regarding substantial issues, one should first take care when using the Middleton scale to measure anomie and/or alienation, especially from a cross-country perspective. In several countries, the two-factor model capturing anomie and alienation is significantly better than a one-factor model: this was the case in Russia and Kazakhstan in the WVS data and of Switzerland and Slovenia in the Euromodule data. The re-

Table 4

Results of the Discriminant Validity Tests using Structural Equation Models with Anomie and Alienation as Predictors for the World Value Survey and Euromodule Data.

Outcome variables	RU[c]	KZ[c]	SI	DE	CH	AT[d]	TK	KR
Anomie used as a predictor								
Trust	−0.41***	0.05	−0.18*	−0.50**	−0.27**	−0.68**	0.16	0.25
Satisf. with income/financial situation[a]	−0.20**	0.14	−0.22**	−0.53**	−0.05	-	1.25	0.36
Life satisfaction	−0.15*	0.034	−0.14	−0.23*	−0.10	-	1.26	0.31
Happiness	0.10	0.08	−0.02	−0.19	−0.03	−0.17	1.05	−0.02
Participation	−0.09	−0.12	0.03	−0.24*	−0.17*	0.35*	0.68	0.00
Voting[b]	0.02	0.12	−0.07	−0.35*	−0.18*	-	−0.38	0.04
Alienation used as a predictor								
Trust	0.14	−0.20**	0.03	0.31	−0.06	0.33	−0.243	−0.30
Satisf. with income/financial situation[a]	−0.11	0.10	−0.28***	0.17	−0.24***	-	−1.54	−0.65**
Life satisfaction	−0.34***	−0.37***	−0.45***	−0.25*	−0.36***	-	−1.70	−0.77***
Happiness	−0.50***	−0.39***	−0.45***	−0.33***	−0.49***	−0.37ns	−1.46	−0.56***
Participation	0.01	0.15*	−0.10	−0.04	−0.03	−0.37**	−0.71	−0.12
Voting[b]	−0.01	−0.04	−0.12	0.14	−0.07	-	0.42	−0.12
Chi-Square	151.806	182.032	64.656	176.284	54.301	28.257	86.163	52.685
df	22	22	22	22	22	13	22	22
p	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000
RMSEA	0.049	0.070	0.044	0.053	0.031	0.048	0.027	0.035
CFI	0.950	0.885	0.967	0.964	0.982	0.955	0.991	0.983
TLI	0.874	0.712	0.917	0.909	0.954	0.904	0.977	0.958
SRMR	0.023	0.036	0.022	0.024	0.019	0.031	0.011	0.018

Cell entries are standardized regression coefficients for variables listed in the first column which were predicted by anomie and alienation. Structural equation models were run in each country separately. RU = Russia, KZ = Kazakhstan, SI = Slovenia, DE = Germany, HU = Hungary, ES = Spain, CH = Switzerland, AT = Austria, TR = Turkey, KR = South Korea.
[a] Since two different datasets are used, only comparisons between the countries within each of the datasets can be performed. Therefore, Russia can only be compared with Kazakhstan. Other countries can be compared with each other, but not with Russia and Kazakhstan.
[b] The results for Austria cannot be compared with other countries. The sample size is significantly smaller, and the full SEM model did not converge. Instead, the key outcome variables were used in a bootstrapped model (those are indicated in the table). In a bootstrapped model, instead of standard errors, one uses the confidence intervals (CI) to evaluate the coefficients significance. The results should be interpreted as follows: In case no zero is included in the interval given, the results are significant. [c] The indicator 'Satisfaction with income / financial situation' was measured as satisfaction with the household's financial situation in WVS and as satisfaction with the household's income in the Euromodule. [d] The indicator "voting" was measured as voting at parliament/presidential elections in general in the WVS and as voting at the last parliamentary election in the Euromodule.
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

sults of discriminant validity are in favor of the two-factor model also for Germany, Austria, Switzerland, and South Korea. However, in these countries, anomie and alienation share more than 50% of variance.

Second, the two-factor model favours Merton's anomie theory. Anomie thus captures a phenomenon when individuals feel incapable of achieving their goals, which makes them either more tolerant of deviant behaviour or even causes them to commit illegal actions to achieve what they desire (Merton, 1968; Messner & Rosenfeld, 2013). Anomie is thus comprised of powerlessness and normlessness, whereas alienation consists of meaninglessness, social isolation, and job dissatisfaction. Alienation denotes the feelings of in-

dividuals estranged from society. However, this does not make individuals tolerant of deviant behaviour. Additionally, anomie predicts distrust in most countries, while alienation predicts life dissatisfaction and unhappiness. A lack of satisfaction with the economic situation was better explained by alienation in South Korea and Switzerland, and by anomie in Russia and Germany.

However, if one selects a two-factor model, one should mind which comparisons can be made between the countries. Based on the current results, only two countries can be compared regarding their levels of anomie and alienation—Russia and Kazakhstan in the WVS data. For Slovenia, Germany, Austria, Switzerland, Turkey, and South Korea in the

Table 5
Results of the Approximate Invariance Test Using Bayesian SEM for Russia and Kazakhstan.

Items	Model A Measurement Invariance Post.	SD	C.I. Lo.	Up.	Model B No constrains on intercept Post.	SD	C.I. Lo.	Up.	Model C Approx. MI $\sigma = 0.50$ Post.	SD	C.I. Lo.	Up.	Model D Approx. MI $\sigma = 0.05$ Post.	SD	C.I. Lo.	Up.	Model E Approx. MI $\sigma = 0.01$ Post.	SD	C.I. Lo.	Up.	Model F Approx. MI $\sigma = 0.005$ Post.	SD	C.I. Lo.	Up.	Model G Approx. MI $\sigma = 0.0005$ Post.	SD	C.I. Lo.	Up.
Russia																												
PL	2.96		2.93	2.99	2.98		2.94	3.01	2.98		2.94	3.01	2.98		2.94	3.01	2.98		2.94	3.01	2.97		2.94	3.01	2.96		2.93	2.99
Soc.Is.	2.12		2.09	2.15	2.15		2.11	2.19	2.15		2.11	2.19	2.15		2.11	2.19	2.15		2.11	2.18	2.15		2.11	2.18	2.13		2.10	2.17
ML	2.46		2.42	2.49	2.45		2.41	2.48	2.45		2.41	2.48	2.45		2.41	2.48	2.45		2.41	2.48	2.45		2.41	2.48	2.45		2.42	2.49
NL	2.89		2.86	2.91	2.86		2.83	2.89	2.86		2.83	2.89	2.86		2.83	2.89	2.86		2.83	2.89	2.86		2.83	2.89	2.87		2.84	2.90
Job.Dis.	2.25		2.21	2.28	2.25		2.21	2.29	2.25		2.20	2.29	2.25		2.21	2.29	2.25		2.21	2.29	2.25		2.21	2.29	2.25		2.21	2.28
Kazakhstan																												
PL	2.96		2.93	2.99	4.59		2.38	5.63	2.91		1.84	3.82	2.91		2.59	3.21	2.91		2.76	3.06	2.91		2.80	3.02	2.93		2.88	2.98
Soc.Is.	2.12		2.09	2.15	2.83		1.72	4.51	2.16		1.54	2.77	2.06		1.83	2.29	2.08		1.97	2.19	2.08		2.00	2.16	2.10		2.06	2.14
ML	2.46		2.42	2.49	3.79		1.85	7.05	2.65		1.58	3.69	2.48		2.09	2.87	2.49		2.31	2.67	2.49		2.36	2.61	2.47		2.42	2.52
NL	2.89		2.86	2.91	4.39		2.46	5.53	2.94		1.97	3.76	2.94		2.64	3.21	2.93		2.79	3.06	2.93		2.83	3.03	2.91		2.87	2.95
Job.Dis.	2.25		2.21	2.28	2.62		2.04	3.76	2.25		1.94	2.67	2.25		2.11	2.39	2.26		2.18	2.33	2.25		2.19	2.32	2.25		2.21	2.29
Δ intercepts																												
PL	0				-1.61				0.07				0.06				0.07				0.06				0.03			
Soc.Is.	0				-0.68				-0.01				0.09				0.07				0.07				0.03			
ML	0				-1.34				-0.21				-0.03				-0.05				-0.04				-0.02			
NL	0				-1.53				-0.08				-0.08				-0.07				-0.07				-0.04			
Job.Dis.	0				-0.37				-0.06				-0.00				-0.01				-0.01				-0.00			
Model fit																												
95% C.I.[a]	(18.04, 67.84)				(-8.39, 42.16)				(-8.03, 43.20)				(-7.60, 43.25)				(-8.10, 42.06)				(-8.30, 42.56)				(-0.44, 53.33)			
ppp[b]	0.001				0.091				0.087				0.091				0.093				0.099				0.027			
DIC	44992.81				44968.73				44970.93				44970.33				44969.10				44968.33				44973.72			
BIC	45176.39				45210.98				45187.37				45187.41				45187.78				45188.54				45202.42			

[a] 95% credibility intervall for the difference between the observed and the replicated χ^2 [b] Posterior predictive p-value

Table 6
Results of the Approximate Invariance Test Using Bayesian SEM for Slovenia and Switzerland.

Items	Model A Measurement Invariance			Model B No constrains on intercept			Model C Approx. MI σ = 0.50			Model D Approx. MI σ = 0.05			Model E Approx. MI σ = 0.01			Model F Approx. MI σ = 0.005			Model G Approx. MI σ = 0.0005		
	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.	Post. SD	C.I. Lo.	Up.
Slovenia																					
PL	3.18	3.13	3.23	3.19	3.13	3.24	3.18	3.13	3.24	3.18	3.13	3.23	3.18	3.13	3.23	3.18	3.13	3.23	3.17	3.12	3.22
Soc.Is.	1.89	1.84	1.93	1.84	1.80	1.89	1.84	1.80	1.89	1.84	1.80	1.89	1.85	1.80	1.90	1.85	1.81	1.90	1.87	1.83	1.92
ML	2.01	1.96	2.06	2.00	1.95	2.06	2.00	1.95	2.06	2.00	1.95	2.06	2.00	1.95	2.05	2.00	1.95	2.06	2.01	1.96	2.06
NL	2.48	2.42	2.54	2.47	2.41	2.53	2.47	2.41	2.53	2.47	2.41	2.53	2.47	2.41	2.53	2.47	2.41	2.53	2.49	2.42	2.54
Job.Dis.	1.88	1.83	1.94	1.94	1.88	1.99	1.94	1.88	1.99	1.94	1.88	1.99	1.92	1.87	1.98	1.92	1.86	1.97	1.88	1.83	1.93
Switzerland																					
PL	3.18	3.13	3.23	2.97	2.10	4.38	2.88	2.32	3.60	3.00	2.74	3.33	3.07	2.91	3.25	3.12	2.99	3.25	3.16	3.09	3.22
Soc.Is.	1.89	1.84	1.93	1.37	−0.32	5.57	2.05	1.19	2.91	2.01	1.72	2.32	1.98	1.84	2.12	1.97	1.87	2.08	1.91	1.86	1.96
ML	2.01	1.96	2.06	1.36	1.36	5.63	2.01	1.19	2.83	1.98	1.70	2.29	1.99	1.84	2.14	2.00	1.89	2.12	2.02	1.96	2.08
NL	2.48	2.42	2.54	2.65	0.42	5.60	2.43	1.12	3.64	2.56	2.18	2.96	2.53	2.35	2.71	2.50	2.36	2.64	2.49	2.42	2.56
Job.Dis.	1.88	1.83	1.94	1.29	0.11	4.25	1.73	1.16	2.31	1.72	1.52	1.94	1.73	1.62	1.85	1.76	1.66	1.86	1.83	1.77	1.90
Δ *Intercepts*																					
PL	0			0.22			0.30			0.18			0.11			0.06			0.01		
Soc.Is.	0			0.47			−0.20			−0.17			−0.14			−0.12			−0.04		
ML	0			0.65			−0.00			0.02			0.01			−0.00			−0.01		
NL	0			−0.19			0.04			−0.09			−0.06			−0.03			−0.01		
Job.Dis.	0			0.65			0.21			0.22			0.20			0.16			0.05		
Model fit																					
95% CI[a]	(−32.98, 84.55)			(−4.72, 46.40)			(−3.63, 46.54)			(−4.20, 45.87)			(−2.32, 49.35)			(14.96, 66.11)			(38.91, 94.08)		
ppp[b]	0.000			0.052			0.046			0.050			0.039			0.002			0.000		
DIC	30401.74			30307.50			30361.55			30361.66			30365.08			30383.30			30409.11		
BIC	30573.46			30585.81			30567.88			30567.30			30571.72			30594.62			30628.14		

[a] 95% credibility intervall for the difference between the observed and the replicated χ^2 [b] Posterior predictive *p*-value

Euromodule data, one can compare unstandardised regression coefficients and covariances but not the latent means. However, one should also keep in mind that anomie did not function as an explanatory variable in Kazakhstan and South Korea, which requires further examination, especially on the meaning of this phenomenon in these countries. Moreover, normlessness had a negative factor loading in South Korea, which implies that the understanding of norms and deviations in this country could be different from those in other societies. Finally, in Turkey, neither anomie nor alienation predicted any of the attitudinal variables used in the discriminant validity test.

This results in another, more fundamental issue. Based on the results similar to Rudnev et al. (2018), we encounter the question whether anomie and alienation are truly that universal and whether they apply for cross-cultural research? We can at least conclude that more problems emerge in non-European countries, but the results acquired for Europe would not satisfy a researcher interested in comparing societies either.

Several factors could contribute to the absence of scalar invariance in the majority of the countries in the Euromodule data (and absence of metric invariance in Hungary and Spain). First, anomie and alienation are complex phenomena which are captured by other abstract concepts (powerlessness, meaninglessness, normlessness, or social isolation), which, in the ideal case, should be measured by at least three indicators per construct (cf., Cieciuch et al., 2014). In our case, one indicator was used per construct. Furthermore, since anomie is measured by two indicators, one cannot test for partial invariance. Second, the indicator "job dissatisfaction" does not suit a measure of alienation. It is advisable to employ it as a covariate (cf., Chiaburu, Thundiyil, & Wang, 2014). In future research, it is recommended to substitute it for the concept of self-estrangement, which aligns with Seeman's theoretical model (1959). Third, we do not have sufficient evidence regarding the translation quality. Only for the WVS data are the original questionnaires available. The Russian questionnaire corresponds to the master language questionnaire. In Kazakhstan, however, rather than "I don't have enough possibilities to make an influence on solving the problems we all face today", other wording was used—"I do not have possibilities to discuss today's issues"—which could affect the results. The technique of back-translating the questionnaire intended in the Euromodule project (Zapf et al., 2004) is now considered outdated (cf., Harkness et al., 2010; von den Vijver, 1998).

Regarding methodological issues, first, the paper provided more evidence on combining exact and approximate measurement invariance. In the WVS data, it was possible to achieve scalar invariance using the approximate measurement invariance with a small allowable range of deviations when the exact scalar measurement invariance was absent.

However, no scalar invariance was reached across the Euromodule data, since the differences in the intercepts were too large.

Second, metric invariance alone does not guarantee that the construct would work in the same manner across contexts. For instance, in the current paper, the results reveal that even though metric invariance is achieved, which indicates that the measured constructs have the same meaning across countries, it can still perform differently in a discriminant validity test across countries. This explains why it is advisable to combine different types of validity tests.

One should note that lacking evidence remains regarding which magnitude of variance specified for the priors in advisable in approximate invariance testing (Cieciuch et al., 2018). In addition, when using the Bayesian approach, one assumes normally distributed continuous variables; no special treatment for ordinal variables is currently available (Cieciuch et al., 2014).

To conclude, if one wishes to improve measures of anomie and alienation, more items per construct are needed (preferably, three items per each theoretical concept—powerlessness, normlessness, social isolation, meaninglessness, and self-estrangement—constituting the Middleton scale). It could also allow one to test for partial measurement invariance. More effort could be invested in wording the items and translating them to ensure they are understood the same in all countries. Here, cognitive interviews could help.

Furthermore, the revealed issues of non-invariance can be further researched. Of interest are issues such as what it means to be anomic or alienated in different countries and whether the differences revealed can be explained by the salience of traditional values, self-construal, religiosity, and other factors.

This paper may encourage researchers to generally be cautious before classical scales are reused, especially when transferring them in a different cultural context. We hardly have data concerning their equivalence. Moreover, in the middle of the previous century, when many classical scales were created, statistical means for their validation were lacking, and the standards of data collection were not yet well-developed. That results in the danger of over- or under-estimating the effects across groups due to the usage of non-equivalent measures (von den Vijver, 1998).

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Appendix
Tables

Table A1
Sample size of the used datasets

Country	Sample size
World Values Survey	
Russia	2500
Kazakhstan	1500
Euromodule	
Slovenia	1012
Germany	2493
Hungary	1510
Spain	2489
Switzerland	1570
Austria	502
Turkey	4020
South Korea	1134

Table A2
Concepts and indicators in the World Values Survey

Nr.	Concept	Indicator	Measured/Recoded
1.	Powerlessness	To what extent do you agree with the statement: I don't have enough possibilities to make an influence on solving the problems we all face today; (reversed coded).	Measured on a 4-point Likert scale with 1 (Strongly agree) to 4 (Strongly disagree), and 9 (don't know). Recoded, so that 1 stands for "strongly disagree" and 4 for "strongly agree". "Don't know" treated as missing value.
2.	Social isolation	I often feel lonely (reversed coded).	Recoded, so that 1 stands for "strongly disagree" and 4 for "strongly agree".
3.	Meaninglessness	Life has become so difficult that I often don't have any idea what I should do (reversed coded).	Recoded, so that 1 stands for "strongly disagree" and 4 for "strongly agree".
4.	Normlessness	In order to move forward people often have to break rules (reversed coded).	Recoded, so that 1 stands for "strongly disagree" and 4 for "strongly agree".
5.	Job dissatisfaction	I don't like my job (reversed coded).	Recoded, so that 1 stands for "strongly disagree" and 4 for "strongly agree".
6.	Generalized Trust	Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?	1 (Most people can be trusted), 2 (Need to be very careful). Recoded into 0 (distrust), 1 (trust).
7.	Life Satisfaction	All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?	Measured on a 10-point scale from 1 (completely dissatisfied), 10 (completely satisfied).
8.	Happiness	Taking all things together, would you say you are (read out and code one answer):	1 (Very happy), 2 (Rather happy), 3 (Not very happy), 4 (Not at all happy).
9.	Satisfaction with the economic situation	How satisfied are you with the financial situation of your household? Please use this card again to help with your answer	Measured on a 10-point scale from 1 (completely dissatisfied), 10 (completely satisfied).
10.	Membership in organisations	Now I am going to read off a list of voluntary organizations. For each organization, could you tell me whether you are an active member, an inactive member or not a member of that type of organization? V25 (Church or religious organization), V26 (Sport or recreational organization), V27 (Art, music or educational organization), V28 (Labor Union), V29 (Political party), V30 (Environmental organization), V32 (Humanitarian or charitable organization).	Measured as: 2 (active member), 1 (inactive member), 0 (doesn't belong). Firstly, binary coded: 1 (membership in an association), 0 (no membership). An index was built out of these seven types of membership, ranging from 0 (no membership) to 1 (membership in all types of associations mentioned)
11.	Voting	When elections take place, do you vote always, usually or never? V227. National level (for Russia and Kazakhstan: presidential or parliamentary elections).	Measured as 1 (Always), 2 (Usually), 3 (Never). Recoded as binary: 1 (always, usually) and 0 (never)

Table A3
Concepts and indicators in the Euromodule

Nr.	Concept	Indicator	Measured/Recoded
1.	Power-lessness	Now I want to read to you several statements dealing with general problems of life. Please, tell me, by help of this list, if you Completely agree, Somewhat agree, Somewhat disagree, Or not agree at all with the statement: I cannot influence most of today's problems (reversely coded).	Measured on a 4-point Likert scale with 1 (Completely agree) to 4 (not agree at all). Recoded, so that 1 stands for "not agree at all" and 4 for "completely agree".
2.	Social Isolation	I often feel lonely (reversely coded).	Recoded, so that 1 stands for "not agree at all" and 4 for "completely agree".
3.	Job Dissatis-faction	I don't really enjoy my work (reversely coded).	Recoded, so that 1 stands for "not agree at all" and 4 for "completely agree".
4.	Mean-ingless-ness	Life has become so complicated today that I almost can't find my way (reversely coded).	Recoded, so that 1 stands for "not agree at all" and 4 for "completely agree".
5.	Norm-lessness	In order to get ahead nowadays you are forced to do things that are not correct (reversely coded).	Recoded, so that 1 stands for "not agree at all" and 4 for "completely agree".
6.	General-ized Trust	Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?	1 stands for "Most people can be trusted", 2 for "Can't be too careful". It was recoded to 0 (distrust) and 1 (trust).
7.	Life Sat-isfaction	What do you mean, how satisfied are you at present with your life in general?	Measured on a scale from 0 to 10, where 0 stands for the lowest and 10 for the highest level of life satisfaction.
8.	Happi-ness	Taking all things together, how would you say things are these days—would you say you are very happy, pretty happy, not too happy, or very unhappy these days?	Measured with four response options: 1 (very happy), 2 (pretty happy), 3 (not too happy), and 4 (very unhappy).
9.	Satisfac-tion with the eco-nomic situation	Taking everything into account, how satisfied are you with your household income?	Measured on a scale from 0 to 10, where 0 stands for the lowest and 10 for the highest level of satisfaction with the economic situation
10.	Member-ship in organisa-tions	Are you currently a member of an organization or association? a. (Trade union), b. (Political party), d. (environmental association), e. (charity association), f. (church related association), g. (cultural group like music or theatre group), h. (sports club or leisure club).	Binary coded: 1 (yes), 0 (no). An index was built out of these seven types of membership, ranging from 0 (no membership) to 1 (membership in all types of associations mentioned)
11.	Voting	Did you vote in the last general parliamentary election?	Measured with three response options: 1 (yes), 2 (no), 3 (no right to vote). Recoded so that 1 stands for "voted" and 0 for "did not vote".

Table A4

Percentage of valide answers of the items constituting the Middleton scale in the World Values Survey

Response category	Powerless-ness	Social isolation	Meaningless-ness	Normless-ness	Job dissatisf.
Russia					
strongly agree	27.4	9.2	12	16.3	6.7
agree	44.4	21.7	32.4	50.4	19.6
disagree	22.1	40.2	38.1	20.7	31.8
strongly disagree	3.7	26	13.4	4.5	16.2
I don't know	2.4	2.8	4.1	8.1	25.7
Kazakhstan					
strongly agree	20.6	7.1	9.5	17.6	8.4
agree	40.1	17.7	31.8	48.5	22.3
disagree	31.1	40.7	41.5	23.3	32.1
strongly disagree	5.2	32.3	14.8	5.3	21.3
I don't know	2.9	2.3	2.5	5.3	16.1

Table A5
Percentages of valid answers of the items constituting the Middleton scale in the Euro-module

Response category	Powerless ness	Social isolation	Meaningless- ness	Normless- ness	Job dissatisf.
Slovenia					
completely agree	39.7	3.3	7.5	14.1	5.5
somewhat agree	42.3	13.0	15.1	34.1	16.5
somewhat disagree	14.9	48.3	47.1	35.2	43.3
do not agree at all	3.1	35.4	30.3	16.6	34.7
Germany					
completely agree	28.2	5.8	5.0	8.0	5.8
somewhat agree	45.9	11.7	15.5	21.7	11.0
somewhat disagree	21.1	28.3	32.5	34.9	32.0
do not agree at all	4.8	54.2	47.1	35.5	51.2
Hungary					
completely agree	6.9	9.3	9.5	40.5	4.5
somewhat agree	20.7	14.1	21.9	42.0	13.0
somewhat disagree	36.5	22.4	31.1	13.2	30.5
do not agree at all	35.9	54.2	37.5	4.3	52.0
Spain					
completely agree	37.3	7.5	6.2	7.1	7.6
somewhat agree	36.0	19.1	17.7	19.8	14.0
somewhat disagree	18.5	23.9	26.7	22.5	24.4
do not agree at all	8.2	49.6	49.4	50.6	54.0
Switzerland					
completely agree	21.2	5.3	4.1	5.4	3.8
somewhat agree	30.6	7.1	7.8	14.6	5.3
somewhat disagree	32.3	18.3	19.0	22.2	13.0
do not agree at all	15.9	69.3	69.1	57.9	78.0
Austria					
completely agree	22.5	2.6	1.4	7.0	2.9
somewhat agree	32.1	7.4	8.8	15.1	6.7
somewhat disagree	31.3	21.2	20.0	24.1	17.1
do not agree at all	14.1	68.9	69.8	53.7	73.3
Turkey					
completely agree	36.8	13.6	18.9	14.1	14.7
somewhat agree	40.9	35.3	40.0	24.3	31.4
somewhat disagree	17.2	41.3	32.5	35.3	41.4
do not agree at all	5.1	9.9	8.6	26.3	12.4
South Korea					
completely agree	3.1	5.4	6.1	2.2	5.0
somewhat agree	40.2	43.3	36.9	24.0	37.6
somewhat disagree	47.6	43.5	48.6	51.1	49.5
do not agree at all	9.1	7.8	8.4	22.8	7.9

Table A6

Spearman correlation coefficients of the items comprising the Middleton scale in the World Values Survey

Variable	Powerlessness	Social isolation	Meaningless-ness	Normless-ness	Job dissatisf.
Powerlessness	1.00	0.17***	0.28***	0.24***	0.10**
Social Isolation	0.15***	1.00	0.40***	0.10***	0.16***
Meaninglessness	0.25***	0.44***	1.00	0.27***	0.23***
Normlessness	0.23***	0.13***	0.26***	1.00	0.02
Job dissatisfaction	0.07**	0.26***	0.25***	0.11***	1.00

Intercorrelations for Russian participants ($N = 2500$) are presented below the diagonal, and inter-correlations for the Kazakh participants ($N = 1500$) are presented above the diagonal.
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table A7
Spearman correlation coefficients of the items comprising the Middleton scale in the Euromodule

Response category	Powerlessness	Social isolation	Job disssatisf.	Meaninglessness
Slovenia				
Powerlessness	1.00	0.07*	0.12***	0.10**
Social isolation	0.07*	1.00	0.30***	0.39***
Job dissatisfaction	0.12***	0.30***	.001	0.33***
Meaninglessness	0.10**	0.39***	0.33***	1.00
Normlessness	0.21***	0.16***	0.22***	0.26***
Germany				
Powerlessness	1.00	0.22***	0.11***	0.25***
Social isolation	0.22***	1.00	0.33***	0.42***
Job dissatisfaction	0.11***	0.33***	1.00	0.35***
Meaninglessness	0.25***	0.42***	0.35***	1.00
Normlessness	0.15***	0.15***	0.22***	0.22***
Hungary				
Powerlessness	1.00	0.34***	0.35***	0.45***
Social isolation	0.34***	1.00	0.35***	0.42***
Job dissatisfaction	0.35***	0.35***	1.00	0.46***
Meaninglessness	0.45***	0.42***	0.46***	1.00
Normlessness	0.08**	0.04	0.09**	0.12***
Spain				
Powerlessness	1.00	0.20***	0.21***	0.27***
Social isolation	0.20***	1.00	0.31***	0.44***
Job dissatisfaction	0.21***	0.31***	1.00	0.31***
Meaninglessness	0.27***	0.44***	0.31***	1.00
Normlessness	0.14***	0.21***	0.18***	0.33***
Switzerland				
Powerlessness	1.00	0.09***	0.06*	0.09***
Social isolation	0.09***	1.00	0.29***	0.37***
Job dissatisfaction	0.06*	0.29***	1.00	0.30***
Meaninglessness	0.09***	0.37***	0.30***	1.00
Normlessness	0.11***	0.18***	0.17***	0.21***
Austria				
Powerlessness	1.00	0.07	−0.02	0.11*
Social isolation	0.07	1.00	0.39***	0.43***
Job dissatisfaction	−0.02	0.39***	1.00	0.38***
Meaninglessness	0.11**	0.43***	0.38***	1.00
Normlessness	0.09	0.16***	0.18***	0.27***
Turkey				
Powerlessness	1.00	0.25***	0.20***	0.28***
Social isolation	0.25***	1.00	0.29***	0.40***
Job dissatisfaction	0.20***	0.29***	1.00	0.31***
Meaninglessness	0.28***	0.40***	0.31***	1.00
Normlessness	0.16***	0.19***	0.13***	0.26***
South Korea				
Powerlessness	1.00	0.17***	0.22***	0.23***
Social isolation	0.17***	1.00	0.32***	0.20***
Job dissatisfaction	0.22***	0.32***	1.00	0.36***
Meaninglessness	0.23***	0.30***	0.36***	1.00
Normlessness	0.16***	0.09**	0.17***	0.24***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table A8
Results of confirmatory factor analysis for a one-factor model (World Values Survey)

Indicator	Russia		Kazakhstan	
	Stat.[a]	Std.Err.	Stat.[a]	Std.Err.
Alienation (factor loadings)				
Isolation	0.57	0.02	0.50	0.03
Meaninglessness	0.78	0.02	0.80	0.03
Job dissatisfaction	0.34	0.03	0.27	0.03
Powerlessness	0.32	0.02	0.38	0.03
Normlessness	0.35	0.02	0.36	0.03
Alienation (residual variance)				
Isolation	0.68	0.02	0.75	0.03
Meaninglessness	0.39	0.04	0.35	0.05
Job dissatisfaction	0.88	0.02	0.93	0.02
Powerlessness	0.90	0.02	0.85	0.02
Normlessness	0.88	0.02	0.87	0.02
Chi-Square	50.223		38.252	
df	5		5	
p-Value	0.000		0.000	
RMSEA	0.060		0.067	
CFI	0.958		0.947	
TLI	0.917		0.894	
SRMR	0.029		0.032	

[a] Factor loadings or residual variance, as indicated.

Table A9
Results of confirmatory factor analysis for a two-factor model (World Values Survey)

	Russia		Kazakhstan	
Indicator	Stat.[a]	Std.Err.	Stat.[a]	Std.Err.
Alienation (factor loadings)				
Isolation	0.56	0.02	0.48	0.03
Meaninglessness	0.80	0.03	0.87	0.04
Job dissatisfaction	0.34	0.03	0.27	0.03
Anomie (factor loadings)				
Powerlessness	0.44	0.03	0.51	0.04
Normlessness	0.47	0.03	0.49	0.04
Correlation[b]	0.69	0.04	0.67	0.05
Alienation (residual variance)				
Isolation	0.68	0.03	0.77	0.03
Meaninglessness	0.36	0.04	0.25	0.07
Job dissatisfaction	0.89	0.02	0.93	0.02
Anomie (residual variance)				
Powerlessness	0.81	0.03	0.74	0.04
Normlessness	0.78	0.03	0.76	0.04
Chi-Square	19.731		9.511	
df	4		4	
p-Value	0.001		0.05	
RMSEA	0.04		0.03	
CFI	0.986		0.991	
TLI	0.964		0.978	
SRMR	0.017		0.016	

[a] Factor loadings or residual variance, as indicated.
[b] Correlation of anomie with alienation

Table A10

Comparison of a two-factor model with a model with constrained correlation between two factors (Word Value Survey)

	Russia	Kazakhstan
Model fits for the two-factor model		
Chi-Square	19.731	9.511
df	4	4
p-Value	0.001	0.05
RMSEA	0.04	0.03
CFI	0.986	0.991
TLI	0.964	0.978
SRMR	0.017	0.016
Model fits for the constrained model[a]		
Chi-Square	50.223	38.252
df	5	5
p-Value	0.000	0.000
RMSEA	0.060	0.067
CFI	0.958	0.947
TLI	0.917	0.894
SRMR	0.029	0.032
Comparisons between the models[b]		
δ RMSEA	0.02	0.037
δ CFI	−0.028	−0.044
δ TLI	−0.047	−0.084
δ SRMR	0.012	0.016

[a] Two-factor model with a correlation between factors
[b] Two-factor model with constrains vs. two factor model

Table A11
Results of a confirmatory factor analysis for a one-factor model (Euromodule)

Indicator	Slovenia Stat.[a]	Slovenia Std.Err.	Germany Stat.[a]	Germany Std.Err.	Hungary Stat.[a]	Hungary Std.Err.	Spain Stat.[a]	Spain Std.Err.	Switzerland Stat.[a]	Switzerland Std.Err.	Austria Stat.[a]	Austria Std.Err.	Turkey Stat.[a]	Turkey Std.Err.	South Korea Stat.[a]	South Korea Std.Err.
Alienation (factor loadings)																
Isolation	0.53	0.04	0.60	0.02	0.56	0.02	0.53	0.02	0.57	0.04	0.60	0.05	0.59	0.02	0.62	0.04
Meaninglessness	0.70	0.04	0.71	0.02	0.80	0.02	0.77	0.03	0.57	0.04	0.71	0.06	0.66	0.02	0.32	0.05
Job dissatisfaction	0.48	0.04	0.48	0.02	0.59	0.02	0.38	0.03	0.43	0.03	0.46	0.05	0.53	0.02	0.67	0.04
Powerlessness	0.19	0.04	0.34	0.02	0.56	0.02	0.30	0.02	0.12	0.03	0.21	0.05	0.39	0.02	0.58	0.04
Normlessness	0.37	0.04	0.32	0.02	0.09	0.03	0.37	0.02	0.25	0.03	0.31	0.05	0.35	0.02	−0.12	0.05
Alienation (residual variances)																
Isolation	0.72	0.04	0.65	0.02	0.69	0.03	0.72	0.03	0.67	0.04	0.64	0.06	0.65	0.02	0.61	0.05
Meaninglessness	0.52	0.05	0.50	0.03	0.368	0.03	0.42	0.04	0.67	0.04	0.49	0.08	0.56	0.02	0.90	0.03
Job dissatisfaction	0.77	0.04	0.77	0.02	0.65	0.03	0.86	0.02	0.82	0.03	0.79	0.05	0.72	0.02	0.55	0.06
Powerlessness	0.96	0.02	0.88	0.02	0.69	0.03	0.91	0.01	0.99	0.01	0.96	0.02	0.84	0.01	0.67	0.05
Normlessness	0.86	0.03	0.90	0.02	0.99	0.01	0.867	0.02	0.94	0.02	0.90	0.03	0.88	0.01	0.99	0.01
Chi-Square	36.709		47.503		3.855		37.092		26.535		17.166		10.648		15.293	
df	5		5		5		5		5		5		5		5	
p-Value	0.000		0.000		0.571		0.000		0.000		0.004		0.059		0.009	
RMSEA	0.080		0.058		0.000		0.051		0.053		0.070		0.017		0.060	
CFI	0.919		0.966		1.000		0.967		0.944		0.945		0.997		0.964	
TLI	0.837		0.932		1.002		0.934		0.888		0.890		0.994		0.928	
SRMR	0.039		0.025		0.009		0.023		0.026		0.035		0.009		0.030	

[a] Factor loadings or residual variance, as indicated.

Table A12
Results of a confirmatory factor analysis for a two-factor model (Euromodule)

Indicator	Slovenia Stat.[a]	Slovenia Std.Err.	Germany Stat.[a]	Germany Std.Err.	Hungary Stat.[a]	Hungary Std.Err.	Spain Stat.[a]	Spain Std.Err.	Switzerland Stat.[a]	Switzerland Std.Err.	Austria Stat.[a]	Austria Std.Err.	Turkey Stat.[a]	Turkey Std.Err.	South Korea Stat.[a]	South Korea Std.Err.
Alienation (factor loadings)																
Isolation	0.53	0.04	0.60	0.02	0.56	0.02	0.53	0.02	0.58	0.04	0.61	0.05	0.59	0.02	0.62	0.04
Meaninglessness	0.71	0.04	0.71	0.02	0.80	0.02	0.76	0.03	0.57	0.04	0.71	0.06	0.66	0.02	0.32	0.05
Job dissatisfaction	0.47	0.04	0.48	0.02	0.59	0.02	0.38	0.03	0.43	0.03	0.46	0.05	0.53	0.02	0.67	0.04
Anomie (factor loadings)																
Powerlessness	0.30	0.05	0.41	0.03	0.63	0.13	0.26	0.04	0.21	0.05	0.28	0.07	0.42	0.03	0.58	0.17
Normlessness	0.69	0.10	0.38	0.03	0.10	0.03	0.32	0.04	0.52	0.11	0.42	0.10	0.37	0.02	−0.12	0.05
Correlation[b]	0.51	0.08	0.81	0.06	0.90	0.19	1.17	0.14	0.47	0.10	0.73	0.16	0.94	0.05	1.00	0.29
Alienation (residual variances)																
Isolation	0.72	0.04	0.64	0.03	0.69	0.03	0.72	0.02	0.67	0.04	0.63	0.07	0.65	0.02	0.61	0.05
Meaninglessness	0.50	0.06	0.49	0.03	0.37	0.03	0.42	0.04	0.67	0.04	0.49	0.08	0.56	0.02	0.90	0.03
Job dissatisfaction	0.78	0.04	0.77	0.02	0.65	0.03	0.86	0.02	0.82	0.03	0.79	0.05	0.72	0.02	0.55	0.06
Anomie (residual variances)																
Powerlessness	0.91	0.03	0.83	0.03	0.61	0.17	0.93	0.02	0.96	0.02	0.92	0.04	0.83	0.02	0.66	0.20
Normlessness	0.53	0.14	0.86	0.02	0.99	0.01	0.90	0.03	0.73	0.11	0.82	0.08	0.87	0.02	0.99	0.01
Chi-Square	16.091		39.482		3.620		34.900		15.452		15.565		9.261		15.293	
df	4		4		4		4		4		4		4		4	
p-Value	0.003		0.000		0.46		0.000		0.004		0.004		0.055		0.004	
RMSEA	0.055		0.060		0.000		0.056		0.043		0.076		0.997		0.071	
CFI	0.969		0.971		1.000		0.968		0.970		0.948		1.000		0.960	
TLI	0.922		0.929		1.001		0.921		0.925		0.869		0.993		0.901	
SRMR	0.024		0.022		0.009		0.022		0.019		0.033		0.008		0.036	

[a] Factor loadings or residual variance, as indicated.   [b] Correlation of anomie with alienation

Table A13

Comparison of a two-factor model with a model with constrained correlation between two factors (Euro-module)

	Slovenia	Germany	Hungary	Spain	Switzer-land	Austria	Turkey	South Korea
Model fits for the two-factor model								
Chi-Square	16.091	39.482	3.620	34.900	15.452	15.565	9.261	15.293
df	4	4	4	4	4	4	4	4
p	0.003	0.000	0.46	0.000	0.004	0.004	0.055	0.004
RMSEA	0.055	0.060	0.000	0.056	0.043	0.076	0.018	0.071
CFI	0.969	0.971	1.000	0.968	0.970	0.948	0.997	0.960
TLI	0.922	0.929	1.001	0.921	0.925	0.869	0.993	0.901
SRMR	0.024	0.022	0.009	0.022	0.019	0.033	0.008	0.036
Model fits for the constrained model[a]								
Chi-Square	36.709	47.503	3.855	37.092	26.535	17.166	10.648	15.293
df	5	5	5	5	5	5	5	5
p-Value	0.000	0.000	0.571	0.000	0.000	0.004	0.059	0.009
RMSEA	0.080	0.058	0.000	0.051	0.053	0.070	0.017	0.060
CFI	0.919	0.966	1.000	0.967	0.944	0.945	0.997	0.964
TLI	0.837	0.932	1.002	0.934	0.888	0.890	0.994	0.928
SRMR	0.039	0.025	0.009	0.023	0.026	0.035	0.009	0.030
Comparisons between the models[b]								
Δ RMSEA	0.025	−0.002	0	−0.005	0.01	−0.006	−0.001	−0.011
Δ CFI	−0.05	−0.005	0	−0.001	−0.026	−0.003	0	0.004
Δ TLI	−0.085	0.003	0.002	0.013	−0.037	0.021	0.001	0.027
Δ SRMR	0.015	0.003	0	0.001	0.007	0.002	0.001	−0.006

[a] Two-factor model with a correlation between factors   [b] Two-factor model with constrains vs. two factor model

Table A14
Measurement invariance tests for two-factor model in eight countries[a] (Euromodule)

Test results	Configural	Metric	Scalar
Chi-Square	29.242	33.948	65.494
df	8	11	14
p-Value	0.000	0.000	0.000
RMSEA	0.036	0.032	0.043
ΔRMSEA	-	−0.004	0.011
CFI	0.988	0.987	0.970
Δ CFI	-	0.001	−0.017
TLI	0.969	0.976	0.957
SRMR	0.017	0.020	0.027
Δ SRMR	-	0.003	0.007

[a] Slovenia, Germany, Hungary, Spain, Switzerland, Austria, Turkey, and South Korea

Table A15
Measurement invariance tests for two-factor model in five countries[a] (Euromodule)

Test results	Configural	Metric	Scalar
Chi-Square	98.387	142.784	252.991
df	20	32	44
p-Value	0.000	0.000	0.000
RMSEA	0.045	0.043	0.050
ΔRMSEA	-	−0.002	−0.007
CFI	0.980	0.972	0.947
Δ CFI	-	−0.008	−0.025
TLI	0.950	0.956	0.940
SRMR	0.019	0.027	0.034
Δ SRMR	-	0.008	0.007

[a] Slovenia, Germany, Switzerland, Austria, and Turkey.

Table A16
Measurement invariance tests for two-factor model in two countries[a] (Euromodule)

Test results	Configural	Metric	Scalar
Chi-Square	31.543	42.816	91.440
df	8	11	14
p-Value	0.000	0.000	0.000
RMSEA	0.048	0.048	0.066
ΔRMSEA	-	0	0.018
CFI	0.970	0.959	0.900
Δ CFI	-	−0.011	−0.059
TLI	0.924	0.925	0.857
SRMR	0.021	0.027	0.042
Δ SRMR	-	0.006	0.015

[a] Slovenia, and Switzerland