**The Support for Economic Inequality Scale: Development and Adjudication**

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**Abstract**

Economic inequality is a defining issue of the 21st century. Past research has documented myriad pernicious psychological effects of high inequality, prompting interest into how people perceive, evaluate, and react to economic inequality. Here we propose, refine, and validate the Support for Economic Inequality Scale (SEIS) – a novel measure of attitudes towards economic inequality. In Study 1, we distill eighteen items down to five, providing evidence for unidimensionality and reliability. In Study 2, we replicate the scale’s unidimensionality and reliability and demonstrate its validity. In Study 3, we evaluate a United States version of the SEIS. Finally, in Studies 4-5, we demonstrate the SEIS’s convergent and predictive validity. The SEIS is a valid and reliable instrument for assessing perceptions of and reactions to economic inequality, and provides a useful tool for researchers investigating the psychological underpinnings of economic inequality.

Keywords: Economic inequality, Item Response Theory, Measurement, Scale development, Validity, Reliability

**Support for Economic Inequality (SEIS): Scale Development and Adjudication**

In 2013, President Barack Obama labeled economic inequality one of the most pressing issues of our time (Obama, 2013)—an assertion mounting empirical evidence corroborates (e.g. Pickett & Wilkinson, 2017; Piketty & Saez, 2014). Economic inequality has substantial psychological costs (e.g., Pickett, James, & Wilkinson, 2006; Wilkinson, 2006) and social consequences (e.g., Murphy, 2001), such as decreased emotional well-being, reduced physical health, and decreased social trust (see Buttrick & Oishi, 2017 for a comprehensive overview of the negative consequences of inequality). And yet despite growing evidence that inequality is detrimental to people and societies, in many countries little action is being taken towards addressing these inequalities (Pickett & Wilkinson, 2017). Why? One possibility may lie in people’s attitudes toward economic inequality––the extent to which it is deemed to exist, be problematic, and warrant amelioration. While there are measures for attitudes towards economic inequality, recent research shows that some of these measures (e.g., Kiatpongsan & Norton, 2014) are susceptible to anchoring effects and ratio bias (Pedersen & Mutz, 2018). In the current paper, we propose a novel self-report measure of attitudes towards economic inequality by developing and evaluating a short, reliable, and informative measure of support for economic inequality.

Economic inequality has received growing levels of attention in the media and social scientific research. For example, within the last two decades alone, there has been an annual increase in the publication of articles mentioning income inequality or economic inequality, from 67 articles published in 1993 compared with 937 articles published in 2016 – a 1,298% increase (Figure 1; Web of Science). Interest has steadily risen as researchers aim not just to quantify levels of inequality that exist within a society, but understand how inequality is maintained through perceptions of, and attitudes toward, economic inequality (e.g., Engelhardt & Wagener, 2014; Kraus, Piff, & Keltner, 2009; Piff, Kraus, & Keltner, 2017; Norton & Ariely, 2011; Shariff, Wiwad, & Aknin, 2016). In addition, researchers have started exploring the daily experience of inequality, bridging the gap between abstract economic indicators and psychological experience and perception (e.g., Buttrick & Oishi, 2017; Kraus, Park, & Tan, 2017).

Surprisingly, researchers have not yet validated a measure assessing support for economic inequality, though numerous indices capture related, but more conceptually broad, constructs (e.g., social dominance orientation, belief in a just world, economic system justification). When support for inequality is studied, researchers often utilize single-item measures in large cross-national datasets, such as the World Values Survey (e.g., “Incomes should be made more equal” versus “We need larger income differences as incentives for individual effort”), European Values Survey (“Incomes should be made more equal” versus “There should be greater incentives for individual effort;” Kaltenthaler, Ceccoli, & Gelleny, 2008), or International Social Survey Programme (“Differences in income in <respondent’s country> are too large;” Kiatpongsan & Norton, 2014; Shariff, Wiwad, & Aknin, 2016). While face valid and convenient, these items lack empirical psychometric evaluation. Given that we cannot adjudicate single item measures, we cannot be sure that items on a scale are assessing the construct they intend to measure, and how well they are doing so. Indeed, recent work demonstrates that proper scale development and construct validation procedures are often ignored in social psychology (Flake, Pek, & Hehman, 2017), despite the fact that the accuracy of psychological measurement, and by extension the validity of psychological results, is entirely dependent on proper scale development and adjudication. Thus, the present paper offers a short, reliable, and psychometrically sound scale of support for economic inequality.

**Defining “Support for Economic Inequality”**

We designed the present scale to measure the degree to which one supports or opposes the current level of economic inequality *as they perceive it*. We specify “as they perceive it” because past research has demonstrated that people vary in their perceptions of how much inequality exists, and should exist –– for example, perceptions of the ideal ratio of pay between the average worker and CEO can range from 2.0 to 20.0 (Kiatpongsan & Norton, 2014). Additionally, the scale does not present any factual information regarding the actual level of inequality. Thus, an individual’s support or opposition to the current level of economic inequality is likely to be partly determined by the level of inequality they believe exists.

Conceptual work on what constitutes ‘support’ is sparse, especially in a political or ideological context. Here, we adopt a broad definition of support laid out in previous work in political science. Easton (1975) argues that the definition of support as believing something to be “right, valid, just, or authoritative” is an adequate starting point for understanding the construct of “support” in the social sciences. Moreover, this work suggests that the key element of the definition of support is the notion of both positive and negative evaluation (i.e., an individual’s support for economic inequality is a result of their evaluations of economic inequality – particularly regarding whether inequality is “right, valid, just, or authoritative”). Thus, we can describe support as a person’s favorable/unfavorable or positive/negative evaluations of an object. In the simplest terms then, the extent to which a person supports economic inequality is a reflection of the extent to which they possess positive or negative evaluations of the current level of economic inequality.

We conceptualize support for economic inequality on a spectrum; one does not dichotomously support or oppose inequality. For example, someone may desire that one person holds all the wealth (complete inequality), that some people hold a lot of wealth and some are poor (moderate inequality), or that every single person is equal (no inequality). Therefore, we believe that support for economic inequality exists as a continuous latent trait and is therefore best measured on a spectrum.

Thus, we defined support for economic inequality as a reflection of two components. First, the degree to which one possesses positive or negative evaluations towards economic inequality. Second, given that we can often consider “support” in political domains as a direct counter to opposition, we consider support for economic inequality as a range from opposition (e.g., negative or unfavorable evaluations; Easton, 1975) on the low end to support (e.g., positive or favorable) on the high end.

**Scale Development and Validation**

**Samples.** To develop a measure assessing support for economic inequality, we collected data from five separate samples on Amazon’s Mechanical Turk (mTurk). While data collection on mTurk has certain limitations (e.g., Johnson & Borden, 2012), it also affords multiple strengths. Numerous studies have demonstrated the usefulness of the mTurk population for data collection (Buhrmeister, Kwang, & Gosling, 2011; Crump, McDonnell, & Gureckis, 2013; Fort, Adda, & Cohen, 2011; Goodman, Cryder, & Cheema, 2013; Mason & Suri, 2012; Paolacci, Chandler, & Ipeirotis, 2010; Rand, 2012; Simcox & Fiez, 2014; Sprouse, 2011). These studies show, for example, that data collected in mTurk samples are approximately equivalent to data collected in more traditional populations (e.g., undergraduates) on dimensions such as reliability (Buhrmeister, Kwang, & Gosling, 2011; Goodman, Cryder, & Cheema, 2013), are more demographically and geographically diverse than data collected in typical university samples, and that many robust psychological effects replicate on mTurk (Crump, McDonnell, & Gureckis, 2013). Moreover, mTurk is very common in the social sciences, and has been utilized effectively in recent scale development research (Armenta, Stroebe, Scheibe, Van Yperen, Stegeman, & Postmes, 2017).

**Analytic Strategy.** We followed Slaney and Maraun’s (2008) approach to data-based test analysis using an Item Response Theory (IRT) framework in which we followed five steps to build and evaluate the Support for Economic Inequality scale (SEIS). First, based on the definition outlined above, we generated an initial list of eighteen potential items aimed at capturing the extent to which feelings about economic inequality are positive or negative. Second, we specified the formal structure of the test and identified the corresponding sense of unidimensionality – whether or not the test items measure only the one construct they were designed to measure – and the relevant statistical model with which to test unidimensionality. Third, we reduced the original eighteen items to a final set of five items, removing those that performed poorly (i.e., did not adequately differentiate between people based on their support for economic inequality). Fourth, we tested the final set of five items for conformity to the relevant sense of unidimensionality. Lastly, we determined the optimal compositing rule and the resulting reliability of the final five-item scale.

In Studies 2 and 3, we repeated steps four and five using the final five-item scale with new independent samples, as well as assessed convergent and divergent validity. In addition, where Studies 1 and 2 explored support for worldwideinequality, Study 3 was conducted to test the unidimensionality and reliability of the SEIS scale referring to economic inequality specifically within the United States. Finally, in Studies 4 and 5 we explore the predictive validity of the SEIS scale by testing its association with engagement in behaviors aimed at addressing economic inequality.

**Brief Overview of Item Response Theory Terminology**

Before presenting analyses, it may be useful to give a brief non-technical overview of Item Response Theory (IRT) and define relevant terminology that will be used throughout the remainder of the paper (for a full review see Lord, 1980; Revelle, unpublished). In contrast to the more commonly utilized Classical Test Theory (CTT), IRT allows for the analysis of how well *each individual item* behaves within the test, and allows for a broader assessment of reliability (i.e., determining how reliable the test is for different people, such as those high or low on the trait being measured). IRT accomplishes this improvement on CTT through tools such as Item Characteristic Curves, discrimination, and information functions.

**Item Characteristic Curves**

For Likert scale items with more than two response options (i.e. polytomous items), Item Characteristic Curves (ICCs) provide a sense of how well each item differentiates between respondents on the trait being measured by plotting latent “ability” (i.e., , the underlying level at which a person possesses the trait being measured) along the x-axis, probability along the y-axis, and a curve for each response option. For example, in the present Study 1, item 10 demonstrates a well-defined ICC (see SOM). There are clear transition points between each response option, and possessing more extreme support for, or opposition to, inequality (as moves further from 0 in either direction), leads to increasing probability of selecting the more extreme response. An item that does a poor job of mapping onto the latent underlying construct will have curves that significantly overlap, with messy or disordered thresholds (i.e., the more extreme you are in the latent attitude, the more moderate response options you choose). For example, in the present Study 1 the ICC for item 13 (see SOM) shows that the item is functioning dichotomously. Individuals below -1 in are most likely to choose Strongly Disagree, and individuals above -1 are most likely to choose Strongly Agree. Responding to all middle options on item 13 appears to be essentially chance, and thus uninterpretable.

**Discrimination**

Making a more detailed, numbers-driven assessment of the quality of a polytomous item involves looking at an item’s discrimination (Muraki, 1992). Broadly, discrimination refers to how effectively the item can differentiate between people *at a given* . For example, does the difference between 2 and 3 on the scale reflect a small difference in latent support for economic inequality or a large difference? If discrimination is low, that means the item is poorly differentiating respondents – someone high on the underlying trait is choosing similar response options to someone low on the underlying trait. Discrimination can, theoretically, range from 0 to infinity, with higher values (e.g., greater than 1; Bolt, Hare, Vitale, & Newman, 2004) indicating that the item does an adequate job of differentiating between people at a given, and is thus more sensitive to changes in the underlying trait.

**Information**

If we successfully construct a test that is comprised of a set of highly discriminating items, then our test provides a great deal of “information” about the underlying latent construct and is thus more sensitive to changes in the underlying trait. Information can be thought of as an assessment of an item or test’s reliability across the continuum. Information is primarily displayed graphically, with along the x-axis and total information along the y-axis; a single curve plots the information over (See SOM for an example).

**Present Studies**

With a brief overview of the relevant IRT terminology in mind, we shift to analyses of the SEIS. In Study 1, we employ a step-wise IRT framework (Slaney & Maraun, 2008) in which we develop an initial pool of eighteen items measuring support for (worldwide) economic inequality, remove poorly functioning items, and test the resulting subset for unidimensionality according to Samejima’s Graded Response Model (Samejima, 1969). In Study 2, we confirm the results of Study 1 with a replication. In Study 3, we evaluate a United States version of the scale developed in Studies 1 and 2. Finally, in Studies 4 and 5, we evaluate evidence for the predictive validity of the world-wide version of the SEIS by exploring whether the SEIS predicts inequality mitigating behaviors when compared with other conceptually similar scales. These studies were carried out in accordance with recommendations and approval from the Simon Fraser University Research Ethics Board. The protocol was approved the by the Research Ethics Board. All subjects gave online informed consent in accordance with the Declaration of Helsinki.

**Study 1**

**Data**

We collected data from 604 participants (Mage = 35.6, 51.8% Female) on Amazon’s Mechanical Turk. Participants reported their agreement with the eighteen item SEIS (see Table 1; items presented in random order). Afterward, participants reported their age, gender, and political ideology. We coded the items such that endorsement of higher response options indicated more support for economic inequality.

**Step 1: Original Item Generation**

Our goal was to begin with an expansive list of items that we could empirically narrow down to the best functioning subset. To this end, we generated an initial set of eighteen items using an inductive approach (Hinkins, 1998, see Table 1 for items).

Descriptive analyses of the original eighteen items showed that most items yielded a significant positive skew, indicating that the majority of our sample endorsed response options consistent with quite strong opposition to inequality. One explanation for this skew may be that our sample consisted of individuals identifying with primarily liberal political ideals (*M* = 5.70, SD = 2.50; with 72% of participants falling at or above the midpoint on a 1 (Conservative) to 9 (Liberal) scale), and as such, may reflect relatively extreme opposition to economic equality. Additionally, non-normality of the data is not uncommon in psychology (Woods, 2006), and the observed positive skew may indicate that, in the population, support for economic inequality demonstrates a strong positive skew such that most people feel relatively negative about economic inequality. Some of the issues regarding skewness of the items will be addressed further in the differential item functioning analyses.

**Step 2: Theoretical Structure of the Test and Relevant Sense of Unidimensionality**

The statistical techniques we use to evaluate a test, and assess for unidimensionality, are inherently linked to the Theoretical Structure (TS) of the scale. In order to determine the appropriate statistical tool with which to assess unidimensionality there are, at minimum, five components that require specification in the TS: The underlying distribution of the latent construct, the item response formats, the number of latent attributes the test is designed to measure, the form of the item/attribute regressions, and whether or not the items are error-laden (Slaney & Maraun, 2008). We chose to administer the items as 7-point polytomous items (i.e., a Likert scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree) whereby people with a stronger support for, or opposition to, economic inequality should be more likely to endorse response options increasingly further above/below the midpoint, respectively. We outlined the formal structure of the present Support for Economic Inequality scale to be:

|  |  |  |
| --- | --- | --- |
|  | TS{Co, 7PL, 1, 7OC, EIV} | ( 1 ) |

Thus, this is a test for which a set of 7-point Likert (7PL) items are designed as error-laden (EIV) indicators of a single underlying attribute (1; support for economic inequality), which continuously varies (Co) in degree over a population. Moreover, for any given item, the relationship between the item and the underlying attribute is conceived of as a set of seven item/attribute regressions in which the probability of endorsing any given category varies with the degree to which the individual possesses the underlying attribute (7-point ordered categorical (7OC); Slaney & Maraun, 2008). For instance, for someone who holds extremely strong support for economic inequality, the probability they will choose “7” is higher than the probability they will choose “6,” which is higher than the probability they will choose “5,” and so on.

From the TS, we can determine the relevant quantitative characterization of the test. The quantitative characterization describes how our test is said to behave mathematically if it is unidimensional according to our TS. When we understand how a unidimensional test should behave (i.e., the expected pattern of responses) according to our TS, we can then choose the appropriate statistical model with which to test for unidimensionality. Slaney and Maraun (2008) provide a list of common theoretical structures, their corresponding quantitative characterizations, and how to statistically test for unidimensionality in each case. Following this table for our specified TS, we expect our test to be unidimensional in the sense of Samejima’s (1969) Graded Response Model (GRM). Samejima’s GRM claims that the probability of an individual with a certain level of the underlying trait choosing a given response option is equal to the probability that they will choose that particular option (or any lower option), minus the probability they will choose the option that is one higher; See Ostini and Nering (2006) for a more technical discussion of how these probabilities are determined and calculated. For example, the probability of someone with moderately positive support for economic inequality choosing option 5 (i.e., Slightly Agree) to a particular question is equal to the cumulative probability of them choosing options 1 through 5 minus the probability of them choosing option 6 (i.e., “Agree”).

Utilizing Samejima’s GRM, we do not expect our test to conform to the typical linear factor analytic assessment of unidimensionality; that is, unidimensionality in the present case does not mean a set of items with high factor loadings onto one latent “common factor.” Instead, the relevant test for unidimensionality is a set of quasi chi-square statistics (i.e., one for each test item) testing the null hypothesis that the observed response probabilities for each item are in line with the expected probability structure laid out by Samejima’s GRM (DeMars, 2010; Ostini & Nering, 2006; Slaney & Maraun, 2008). Retaining the null hypothesis suggests that the observed response probabilities for each item are in line with the response probabilities we would expect given Samejima’s GRM, and thus the set of items are unidimensional.

We will reserve our assessment of unidimensionality as part of our procedure in determining the final subset of items, as there is no need to determine that our full eighteen item scale is unidimensional when we intend to remove any poorly performing items. Therefore, we now turn to our initial item reduction.

**Step 3: Initial Item Reduction/Selection**

We conducted all of our IRT individual item analyses using the ltm package (Rizopoulos, 2006) in R (R Core Team, 2016). All decisions were data-driven; we were not aware of the content of a given item during these analyses and items were simply labeled numerically. We based our decisions to remove items on the interaction of numerous factors: we evaluated each of the eighteen items individually using their Item Characteristic Curves (ICCs), the relative proportion of information each item contributed to the scale’s overall information, and discrimination. As mentioned previously, generally higher discrimination values (e.g., above 1) are indicative of acceptable item functioning (Bolt et al., 2004).

When comparing each individual item’s ICC with its discrimination value it became clear that the five poorest functioning items were 1, 4, 6, 9, 13, and 17 (see Table 2 for discrimination values and SOM for ICCs). These six items had the lowest discrimination values, the flattest and least discerning ICCs, and contributed the lowest proportions to the scale’s overall information. Thus, these items are poor at discriminating between individuals on support for economic inequality and the response patterns are effectively random so they were dropped from further analysis.

From the remaining twelve items, we identified a small subset of items that appeared to be the most effective in terms of having the highest discrimination, contributing the most information to the total overall scale information, and having the most clearly defined ICCs (See SOM): 2, 3, 5, 8, 10, 15. However, there were some content and threshold redundancies among these seven items. Particularly, items 8 and 15 boasted nearly identical thresholds (Table 2), meaning that the items were redundant in the information they added to the scale. This redundancy can also be seen in a cursory look at the content of items 8 and 15 respectively: “I am very disturbed by the amount of inequality in the world today” and “I am very concerned about the current level of economic inequality in the world.” As such we opted to keep only item 8, as it had a slightly higher discrimination. The same was true of items 2 and 5, and the similarity could again be seen in the item content: “Economic inequality is not a big problem in the world” and “Economic inequality is causing many of the world’s problems.” In this case, we opted to keep item 5, albeit we could have easily kept item 2. This left us with a final five-item scale containing items 3, 5, 8, 10, and 18.

Given that IRT parameters, such as discrimination and information, are calculated relative to the complete set of items included in the scale, and we now had a different subset of five items, we again re-evaluated the individual item functioning for the set of five items. This analysis of the ICCs, information, and discrimination demonstrated that the set of five items function better, across the board, than the original set of 18 items (See SOM for ICCs). Discrimination values are higher, each item contributes roughly equivalent information to the scale total, and the ICCs are uniformly sharper and more cleanly defined. Following this improvement and apparent acceptable functioning of these five particular items, we turned to an assessment of unidimensionality.

**Step 4: Assessment of Unidimensionality**

To test the hypothesis of unidimensionality we utilized quasi chi-square statistics provided by the IRTPro software (Version 4.1, IRTPro, 2017), one for each of the five test items. These statistics quantify the difference between observed response probabilities and those expected under Samejima’s GRM (Bolt et al., 2004). A large value of one or more of these statistics, relative to the degrees of freedom, constitutes evidence against the hypothesis of unidimensionality. A common problem with the chi-square approach, however, is that large sample sizes result in over-powered chi-square tests that reject the null hypothesis for very small deviations from the expected probabilities, erroneously suggesting that Samejima’s GRM is a poor fit and the items are not unidimensional. Thus, we have adopted the rule under which the hypothesis of unidimensionality was rejected if any of the five quasi chi-square statistics was greater than three times its degrees of freedom (Drasgow, Levine, Tsien, Williams, & Mead, 1995).

Because all five statistics turned out to be less than three times their degrees of freedom (Table 3), the hypothesis of unidimensionality was retained (i.e., the inferential decision was made that the five items measure a common underlying trait, presumptively support for economic inequality). From here, we turn to determining the optimal compositing rule and assessing the point-estimated reliability of the resulting five items.

**Step 5: Model Implied Compositing Rule and Reliability Assessment**

We computed information functions (see Figure 2a) for two of the most common candidate compositing rules for psychological scales (See https://osf.io/cmyze/ for Maple (Version 2015.1, Maplesoft 2015) worksheet containing the calculations): (1) a linear weighted estimator (using the *aj* slope parameter as the weight for each item), and (2) a unit-weighted estimator (simply adding the unweighted items together). We graphically compared the information functions of the composited scale calculated under each of these two compositing rules with the non-linear maximum likelihood estimator of (the theoretical information maximum). Figure 2a shows that neither compositing rule creates a scale that provides as much information about the underlying trait as the theoretical maximum. However, the two composited versions of the scale appear to provide identical information (i.e., the curves almost completely overlap). Given that the slope and unit weighted composited performed nearly identically, and unit weights are simpler to work with (i.e., a researcher can simply add a participant’s scores on each question, or average them, to create a single score and does not need to worry about weighting each item by its factor loading, *aj*), we decided to nominate unit weighting as the ideal compositing rule for the SEIS. Thus, future researchers who wish to use the SEIS should not weight the items by factor scores or any similar slope parameter, but simply compute the composite as a sum or mean for each participant. The reliability of the unit-weighted linear composite for the final five-item scale was .94 (See Maple worksheet at http://osf.io/cmzye/ for reliability calculations).

**Discussion**

In Study 1 we generated an initial set of eighteen items measuring support for economic inequality. We then distilled this set of items down to the best functioning five items (See Table 1). Finally, we determined that this set of five items is unidimensional and thus measures one underlying construct, should be composited using a simple unit-weighted sum or mean calculation, and demonstrated a high degree of point-estimated reliability. While Study 1 provides sufficient evidence for a psychometrically sound and reliable measure of support for economic inequality, we did not explore questions of convergent and divergent validity. Thus, in Study 2 we aimed to replicate the findings of Study 1 and provide additional evidence for convergent validity of the SEIS.

**Study 2**

The aim of Study 2 was to replicate and extend the findings of Study 1 with the final five-item measure. To this end, we collected data from a separate sample of adults on Amazon’s Mechanical Turk and ran all the same individual item analyses and tests of unidimensionality as Study 1. Additionally, we explored convergent validity by including measures of just world beliefs (Lambert, Burroughs, & Nguyen, 1999), support for redistribution (World Values Survey, 2014), wealth guilt (Piff, Robinson, Horberg, & Monin, unpublished), as well as face-valid measures of perceived level of inequality, perceived growth in inequality, belief that inequality is unfixable, perceived warmth and competence of people in poverty (adapted from Fiske, Cuddy, Glick & Xu, 2002), empathy (Vachon & Lynam, 2016), prosocial tendencies (Carlo, Hausmann, Christiansen, & Randall, 2003), income, and political ideology. The three scales measuring perceived level and growth of inequality as well as the belief that inequality is fixable were created in-house as short, face-valid measures specifically for this paper.

**Data**

We collected data from 657 participants (Mage = 23.8, 56.6% Female) on Amazon’s Mechanical Turk. Participants first completed the five-item SEIS (items presented in random order). Afterward, participants filled out, in random order, measures of just world beliefs (Lambert, Burroughs, & Nguyen, 1999), support for redistribution (World Values Survey, 2012), wealth guilt (Piff, Robinson, Horberg, & Monin, unpublished), perceived level of inequality (e.g., “Overall, the world is a fairly equal place”), perceived growth in inequality (e.g., “Economic inequality in the world is growing faster than ever before”), belief that inequality is unfixable (e.g., “Economic inequality cannot be prevented”), perceived warmth and competence of people in poverty (adapted from Fiske, Cuddy, Glick, & Xu, 2002), empathy (Vachon & Lynam, 2016), prosocial tendencies (Carlo, Hausmann, Christiansen, & Randall, 2003), income, political ideology, and demographics. Identical to Study 1, we coded responses on the Support for Economic Inequality scale such that endorsement of higher response options indicated more support for economic inequality. All materials are available on https://osf.io/cmyze/.

**Individual Item Evaluation**

All individual item IRT analyses were conducted using the ltm package (Rizopoulos, 2006) in R (R Core Team, 2016). Similar to Study 1, we assessed the ICCs, information, and discrimination values for the scale in order to confirm that the items were indeed functioning appropriately with respect to their ability to discriminate between people with different underlying support for economic inequality. Replicating Study 1, all items demonstrated generally sharp and clearly defined ICCs, indicating that they function with a high degree of discrimination and are effective at differentiating between people on their underlying support for economic inequality. All discrimination values were above 3, all items contributed a high degree of information (> 9) to the total scale (Information = 62.57; See SOM). These analyses confirm the selection of the final five items, which comprise a small but highly differentiating and useful set of items.

**Assessment of Unidimensionality**

Consistent with Study 1, we tested the hypothesis of unidimensionality with a quasi chi-square statistic, for each of the five items, using IRTPro software (Version 4.1, IRTPro, 2017). Again, we also adopted the rule (Drasgow, et al., 1995) that the hypothesis of unidimensionality would be retained so long as each statistic was no greater than three times its degrees of freedom. Again, all chi-square statistics were comfortably within this range (Table 3). Thus, we replicate Study 1 and retain the hypothesis that the set of five items are unidimensional, measuring one underlying trait (support for economic inequality).

**Model Implied Compositing Rule and Reliability Assessment**

We computed information functions (see Figure 2b) for the same candidate compositing rules as Study 1 (see https://osf.io/cmyze/ for Maple (Version 2015.1, Maplesoft 2015) worksheet containing calculations). Replicating Study 1, Figure 2b shows that the two candidate compositing rules did not provide as much information as the theoretical maximum, but they again performed equally as well as each other. Given this replication of the information curves from Study 1, our initial decision to nominate unit weighting as the ideal compositing rule for the SEIS was confirmed. The reliability of the unit-weighted linear composite for the five-item scale was .94.

**Convergent and Divergent Validity**

To assess convergent and divergent validity we ran a series of correlations between the final SEIS and various measures of related political attitudes and psychological constructs. Demonstrating evidence for convergent validity, we found that more positive support for economic inequality was related to higher: general conservatism, social conservatism, economic conservatism, belief that inequality is unfixable, belief in a just world, and income. Additionally, we found that more positive support for economic inequality was related to decreased: perceived inequality, support for redistribution, wealth guilt, belief that the poor are competent, belief that the poor are warm, empathy, and prosocial tendencies (see Table 4). Demonstrating evidence for divergent validity, we found no significant relationship between support for economic inequality and gender (*r* = -.07, *p* = .07) or age (*r* = -.04, *p* = .31). Initially, we suspected there may be a correlation with age simply because older participants were likely to have higher incomes and be more conservative. However, in our sample, age was uncorrelated with both income (*r* = .03, *p* = .47) and conservatism (*r* = .02, *p* = .68).

**Discussion**

In Study 2 we replicated the findings of Study 1, demonstrating that the SEIS is comprised of a small set of effective, unidimensional, and reliable items. Additionally, we extended the findings of Study 1 to demonstrate evidence for convergent and divergent validity of the SEIS. However, Studies 1 and 2 both measure support for *worldwide* economic inequality. Given that many inequality researchers are concerned with more localized (e.g., country, state, or county) inequality, and that much of this current research is being done in the United States*,* we sought to further extend the findings of Studies 1 and 2 by testing a United States version of the SEIS.

**Study 3**

The aim of Study 3 was to extend the findings of Studies 1 and 2 and evaluate the performance of a United States version of the SEIS. The original scale developed and tested in Studies 1 and 2 was context specific, such that items assess support for worldwide inequality. However, many of the researchers exploring support for economic inequality, including authors of the present study, have been particularly interested in the United States, where economic inequality is exceptionally high (Piff, Kraus, & Keltner, 2017). Therefore, we wanted to test the psychometric properties and reliability of the present scale in this high-interest context: the United States. In order to create this version we took the original five-item scale and simply replaced every instance of the word “world” with “United States.” For example, “economic inequality is causing many of the world’s problems” became “economic inequality is causing many of the United States’ problems.” We then collected data from a separate sample of Amazon Mechanical Turk workers and ran all the same individual item analyses and tests of unidimensionality as in Studies 1 and 2. Additionally, we utilized the same scales to explore the convergent and divergent validity as Study 2, as well as additional measures of free will, over-claiming, and socially desirable responding. Over-claiming measures self-enhancement through participants’ willingness to claim they possess knowledge they actually do not. Over-claiming was measured by the extent to which a person claimed to be knowledgeable in non-existent subjects (e.g., Plates of Parallax). We included these measures to examine whether the SEIS is susceptible to social desirability or self-enhancement effects.

**Data**

We collected data from 619 participants (Mage = 36.01, 52.7% Female) on Amazon’s Mechanical Turk. Participants first completed the five-item U.S. version of the SEIS (items presented in random order). Afterward, participants filled out, in random order, measures of just world beliefs (Lambert, Burroughs, & Nguyen, 1999), support for redistribution (World Values Survey, 2012), wealth guilt (Piff, Robinson, Horberg, & Monin, unpublished), perceived level of U.S. inequality (e.g., “Overall, the United States is a fairly equal place”), perceived growth in U.S. inequality (e.g., “Economic inequality in the United States is growing faster than ever before”), belief that US inequality is unfixable (e.g., “Economic inequality cannot be prevented”), warmth and competence of people in poverty (adapted from Fiske, Cuddy, Glick, & Xu, 2002), empathy (Vachon & Lynam, 2016), prosocial tendencies (Carlo, Hausmann, Christiansen, & Randall, 2003), free will (Nadelhoffer, Shepard, Nahmias, Sripada, & Ross,  2014), over-claiming (Paulhus, Harms, Bruce, & Lysy, 2003), socially desirable responding (Reynolds, 1982), income, political ideology, and demographics. Identical to Studies 1 and 2, we coded the items such that endorsement of higher response options (and higher item means) indicate more positive support for economic inequality. All materials are available at https://osf.io/cmyze/.

**Individual Item Evaluation**

All individual item IRT analyses were conducted using the ltm package (Rizopolous, 2006) in R (R Core Team, 2016). We assessed the ICCs, information, and discrimination values for the scale in order to confirm that the items were indeed functioning appropriately. Consistent with Studies 1 and 2, all items demonstrated generally sharp and clearly defined ICCs, indicating that they function with a high degree of discrimination and are effective at differentiating between people on their underlying support for economic inequality. All discrimination values were above 3, all items contributed a high degree of information (> 9) to the total scale (Information = 62.76), and all ICCs were similar in profile to Study 2 (See SOM). The results of these analyses demonstrate that the U.S. version of our scale functions similarly to the more general worldwide version, and that the five items comprise a highly discerning and useful set of items.

**Assessment of Unidimensionality**

Again, following Studies 1 and 2, we computed quasi chi-square statistics for each of the five items (Table 3) using IRTPro software (Version 4.1, IRTPro, 2017). We adopted the same rule (Drasgow et al., 1995) such that the hypothesis of unidimensionality would be retained so long as each statistic was no greater than three times its degrees of freedom. Replicating Studies 1 and 2, all quasi chi-square statistics were within this range. Thus, we again retain the hypothesis that the five items are unidimensional and measure one underlying trait (support for economic inequality).

**Model Implied Compositing Rule and Reliability Assessment**

We computed information functions (see Figure 2c) for the same candidate compositing rules as Studies 1 and 2 (See https://osf.io/cmyze/ for Maple (Version 2015.1, Maplesoft 2015) worksheet containing calculations). Replicating Studies 1 and 2, this analysis demonstrated that neither linear estimator performed as well as the theoretical maximum, and the unit weighted composite performed only slightly worse than the *aj*weighted composite. Given this replication of the information curves from Studies 1 and 2, our decision to nominate unit weighting as the ideal compositing rule for the United States version of the SEIS was again confirmed. While the unit-weighted version appears to give a little bit less information, we do not believe the loss of information is great enough to justify significantly complicating the compositing rule. The reliability of the unit-weighted linear composite for the final five-item United States version of the scale was .94.

**Convergent and Divergent Validity**

To assess convergent and divergent validity we ran a series of correlations between the U.S. version of the SEIS and the same measures of related political attitudes and psychological constructs as Study 2, plus additional measures of free will, over-claiming, and socially desirable responding. Similar to Study 2, as evidence for convergent validitywe found that more support for economic inequality was related to higher: general conservatism, social conservatism, economic conservatism, belief that inequality is unfixable, belief in a just world, free will, and income (see Table 5). Additionally, we found that more support for economic inequality was related to decreased: perceived inequality, support for redistribution, wealth guilt, belief that the poor are competent, belief that the poor are warm, empathy, and prosocial tendencies.Additionally, as evidence of divergent validity, we found no relationship between support for economic inequality and gender (*r* = -.06, *p* = .16) or age (*r* = -.03, *p* = .51). Support for economic inequality was uncorrelated with over-claiming (*r* = -.04, *p* = .38) and socially desirable responding (*r* = .00, *p* = .98).

**Context Specific Scale Differences.** In order to explore if mean responses to the SEIS differ due to question wording, we compared average responses using the United States version and worldwide version (see http://osf.io/cmzye/ for all analyses). To do so, we combined the data from Study 2 and Study 3 into one data file containing responses to the five SEIS items with framing coded as 1 (world framing) and 2 (U.S. framing). We conducted an independent-samples t-test comparing the mean composited scale and found no significant difference (*M*world = 2.71, *SD* = 1.43; *M*USA = 2.72, *SD* = 1.46; *t*(1221) = -.12, *p* = .90, 95% CI [-.17,.15], *d* = 0.01). Further, in looking at the measures of dispersion across the world and U.S. specific mean composited scales, we see similar measures of skewness (0.80 and 0.89, respectively) and kurtosis (0.12 and 0.25, respectively). As such, the two versions of the SEIS are roughly equivalent in terms of their descriptive statistics. This suggests (if adjudicated appropriately for each new context) the SEIS can be flexibly adapted to suit a researcher’s needs. For example, the scale can be altered to measure support for economic inequality in different contexts such as a specific country, state, county, or specific city.

One additional piece of evidence that is crucial in demonstrating the usefulness of the SEIS is its association with relevant behavior. Specifically, does the SEIS predict behavior aimed at addressing economic inequality, such as signing a petition or making a donation? We tested this question in Studies 4 and 5.

**Study 4**

**Participants**

We collected data from 117 participants (Mage = 35.31, 59.0% Female) on Amazon’s Mechanical Turk.[[1]](#endnote-1)

**Procedure**

Participants were first presented with a petition for a 39% increase in the minimum wage in the United States from $7.25/hour to $10.10/hour (See http://osf.io/cmzye/ for full petition content). Following reading the petition, participants were asked “to what extent do you agree with the content of the petition” on a 1 (Strongly disagree) to 7 (Strongly agree) scale, and were subsequently given the opportunity to sign the petition by entering their first and last name, email address, and zip code. After choosing whether or not to sign the petition, participants filled out the worldwide version of the SEIS and demographics (age, gender, education level, household income, and the level of inequality present in the area in which they grew up; see http://osf.io/cmzye/ for full questionnaire).

If the SEIS has adequate predictive validity, higher support for economic inequality should predict (a) decreased agreement with the content of the petition and (b) decreased likelihood of signing the petition. We predicted these relationships would be detectable in the data set and remain when controlling for age, gender, education, household income, political ideology, and the level of inequality that one experienced in their childhood neighborhood.

**Results**

Analyses supported the aforementioned hypotheses. First, a linear regression indicated that higher support for economic inequality was associated with lower reported agreement with the petition. Importantly, this relationship remained when controlling for all of the relevant included variables that might influence one’s agreement with a petition aimed at increasing minimum wage (Table 6). In addition, a second logistic regression demonstrated that higher support for economic inequality was associated with lower likelihood of signing the petition. Once again, this relationship remained when controlling for relevant variables (Table 7).

**Discussion**

The results of Study 4 provide initial evidence for the predictive validity of the SEIS. Individuals reporting greater support for economic inequality are less likely to express support for a petition to increase the minimum wage. More importantly, individuals reporting greater support for economic inequality are less likely to sign the petition.. Both of these relationships remain after controlling for age, gender, education, household income, political ideology, and level of inequality in a participant’s childhood neighborhood. Notably, support for economic inequality was the strongest predictor of expressed support and behavior in the present data. Together, these findings offer initial support for the predictive validity of the SEIS, indicating that it captures people’s feelings toward economic inequality and predicts their willingness to take action to mitigate it.

However, Study 4 had three limitations. First, Study 4 had a relatively small sample size. In Study 5 we recruited a larger sample. Second, Study 4 did not contain pre-existing measures that directly measure support for economic inequality. For instance, Study 4 did not contain measures such as economic system justification (Jost & Thompson, 2000) or belief in a just world (Lambert, Burroughs, & Nguyen, 1999); these measures capture related constructs but are more conceptually broad. Specifically, economic system justification contains items such as “economic positions are legitimate reflections of people’s achievements” but also contains items such as “there are no inherent differences between rich and poor; it is purely a matter of the circumstances into which you are born.” As such, items capture both support for economic inequality *and* beliefs about the attributional causes of wealth and poverty. The SEIS aims to remove these confounded concepts and solely measure support for economic inequality, thus offering a more precise assessment of support for economic inequality. Nevertheless, it is important to test the predictive validity of the SEIS against these conceptually similar measures. Finally, in Study 4 we captured agreement and behavior before participants completed the SEIS, which could raise concern that responses on the SEIS were biased by recent action. Therefore, in Study 5, participants were prompted to complete the SEIS before being provided with an opportunity to enact support for (in)equality.

**Study 5**

**Participants**

We collected data from 652 participants (Mage = 39.50, 52.9% Female) on Amazon’s Mechanical Turk.

**Procedure**

Participants were first presented with a survey containing all of our potential predictor variables, in random order: the SEIS, perceptions of the level of inequality, perceptions of growth in inequality, belief that inequality is unfixable, belief in a just world (Lambert, Burroughs, & Nguyen, 1999), social dominance orientation (Pratto, Sidanius, Stallworth, & Malle, 1994), economic system justification (Jost & Thompson, 2000), protestant work ethic (Mirels & Garrett, 1971), inegalitarianism (Kluegel & Smith, 1986), support for redistribution (World Values Survey, 2014), and the single-item measures of support for inequality from the World Values Survey (2014) and International Social Survey Programme (2009).

Following this, participants were presented with an opportunity to make a proxy-donation to an organization called the “Fight for $15.” Specifically, participants were told that they would be given ten raffle tickets entering them into a draw to win one of four $25 bonus payments. Participants then read a short paragraph describing the mission of the Fight for $15 Campaign as “an advocacy organization that is fighting to reduce economic inequality by raising the minimum wage … from $7.25 to $15 an hour nationwide” (See http://osf.io/cmzye/ for full text). After reading about the Fight for $15, participants were asked to decide “how many of [their] 10 raffle tickets [they would] like to transfer to the Fight for $15.” Lastly, participants reported their demographics.

**Results**

We first ran a series of correlations with all the predictor variables to explore how the SEIS related to the additional key predictors. Unsurprisingly, we observed high correlations between the SEIS and some of the other conceptually similar measures. For example, social dominance orientation (r = .77, *p* < .001), economic system justification (r = .78, *p <* .001), and support for redistribution (r = .75, *p* < .001; See Table 8). Thus, in order to avoid issues of multicollinearity resulting from high correlations between the SEIS and several key predictors in a subsequent regression, we separated each key predictor into its own model and assessed ∆R2 from a base model. The base model we created contained age, gender, income, and political ideology predicting giving to the Fight for $15 (See Table 9). Following this, we ran a series of regressions with the SEIS, belief in a just world, social dominance orientation, economic system justification, protestant work ethic, as well as the WVS and ISSP measures of support for inequality.

In this series of regressions controlling for age, gender, income, and political ideology, we found that the SEIS (ΔR2 = .022), economic system justification (ΔR2 = .015), protestant work ethic (ΔR2 = .005), and the ISSP measure of support for inequality (ΔR2 = .019) predicted raffle ticket donations to the Fight for $15. Across each of the tested predictors (Table 9), the SEIS offered the largest change in R squared off the base model (containing only age, income, gender, and political ideology) and highest β, suggesting that the SEIS explains more variance and is a better predictor, relative to other conceptually similar measures, of donating to the Fight for $15.

**Discussion**

Study 5 offers additional evidence for the predictive validity of the SEIS. While similar conceptual constructs such as the belief in a just world and economic system justification, were able to predict behavioral support for minimum wage increases, the SEIS demonstrated of the strongest predictions. The SEIS showed similar or superior predictive validity to some of the single item measures of support for economic inequality (i.e., the WVS and ISSP measures), but does not suffer from the same drawbacks as the single-item ISSP measure such as the inability to assess reliability and properly evaluate its psychometric properties.

**Differential Item Functioning**

One final element to assessing the psychometric fitness of the SEIS is to explore whether the scale’s items function the same in meaningfully different subgroups. As such, we conducted a set of Differential Item Functioning (DIF) analyses across both (a) political ideology and (b) relative high and low income.

In order to achieve the recommended minimum sample size of approximately 300 per subgroup (Zwick, 2012), we combined the data from Studies 2 and 5 (ncombined = 1,308). We utilized data from these two studies because they were the only two investigations containing a measure of political party identification where participants identified themselves as either a Republican or Democrat, and completed the worldwide version of the SEIS.

For DIF analyses we first split participants on political party self-identification and explored how the items functioned (ICCs, discrimination, information, and unidimensionality) in self-identified Democrats and Republicans (ndem = 535, nrep = 343). Second, we conducted a median split on income and explored how the items functioned in the (relative) high and low-income categories. The median income of all 1,308 participants was $40,000-$49,999, thus the low-income category contains all participants with household incomes under $50,000 (nlow = 658) and the high-income category contains all participants with a household income of $50,000 and above (nhigh = 649). All Discrimination parameters and Information values can be found in the SOM; all Item Characteristic Curves can be found at http://osf.io/cmzye/.

**Item Functioning by Political Party Identification**

Across self-identified Republicans and Democrats, the five items of the SEIS functioned similarly, with some minor differences. Specifically, each of the five items demonstrated sharp and clearly defined ICCs across both groups, indicating that (in both subgroups) the five items function with a high degree of discrimination and are effective and differentiating between people in their underlying support for economic inequality. Interestingly, for Democrats, the five items appear to better differentiate among those high on latent support for inequality. This is possibly because self-identified Democrats express lower support for economic inequality overall. Thus, they must possess a reasonably high degree of the underlying trait to select more extreme Likert scale responses (e.g., nearer or above the scale’s midpoint). For self-identified Republicans, however, the ICCs are much more centered along the x-axis. This suggests that the SEIS is better at differentiating between Republicans along the spectrum of latent support for economic inequality, as opposed to simply on the high end like in Democrats.

Across both groups, all discrimination values were slightly lower than those observed in Studies 1-3, however values were all still greater than 1.5 (with most still above 3), suggesting that items adequately differentiate between people on underlying support for economic inequality regardless of their political party identification (Bolt et al., 2004). Additionally, in both Democrats and Republicans, all items contributed a high degree of information to the total scale (Informationdem = 57.41 and Informationrep = 50.38). Consistent with Studies 1-3, Items 3 and 10 appear to be the weakest items in both the Republican and Democrat subgroups. Additionally, these two items appear to function better in Democrats than Republicans – this can be seen in both the flatter ICCs, lower discrimination, and lower Information values present in the Republican subgroup. It is worth noting that the pattern of discrimination parameters and information values is roughly equivalent to the patterns seen in Studies 1-3. For example, in the Republican and Democrat subgroups items 3 and 10 show similar contributions to the proportion of the scales total information (See SOM).

While two particular items (i.e., “The negative consequences of economic inequality have been largely exaggerated” and “Economic inequality is not a problem”) appear to be less discriminating in the Republican sample, they still pass the discrimination thresholds for being informative items. Moreover, in both Republicans and Democrats, the five-item SEIS passes our threshold for unidimensionality with the chi-square values for each item not exceeding three times the corresponding degrees of freedom (See SOM; Drasgow, 1995), and we thus determined the SEIS is unidimensional regardless of the respondents political ideology.

**Item Functioning by Income**

The relatively small differences in item functioning across low and high income participants follows roughly the same pattern as the differences between self-identified Democrat and Republican participants. Across both the low and high income groups, each of the five items demonstrated sharp and clearly defined ICCs, indicating that they function with a high degree of discrimination and are effective at differentiating between people on their underlying support for economic inequality. Interestingly, the ICCs show that the SEIS appears to be better at differentiating between low-income people who are higher in latent support for economic inequality, and high-income people lower in latent support for economic inequality. Across both the low and high income groups, all discrimination values were above 2 (with most still above 3), suggesting the items adequately differentiate between people regardless of their relative low or high income status (Bolt et al., 2004). Additionally, in both low and high income participants, all items contributed a high degree of information to the total scale (InformationLI = 58.12 and InformationHI = 61.04). Consistent with the broad analyses in Studies 1-3, items 3 and 10 appear to be slightly weaker items in both the low and high income subgroups. However, these two items appear to function equivalently across the two income subgroups.

Thus, the SEIS functions similarly in both the low and high income subgroups, compared with the overall individual item analyses from Studies 1-3. Moreover, in both low and high income participants, the five-item SEIS passes our threshold for unidimensionality with the chi-square values for each item not exceeding three times the corresponding degrees of freedom (See SOM; Drasgow, 1995), and we thus determined the SEIS is unidimensional regardless of the respondents income.

**General Discussion**

As economic inequality has risen in countries like the United States, so, too, has its status as a topic of interest to researchers, politicians, policy makers, and the public. However, there are presently no psychometrically adjudicated and validated measures of support for economic inequality. The present paper seeks to fill this gap by providing a psychometrically sound scale of support for economic inequality. Across five studies we employ Item Response Theory (i.e., Slaney & Maraun, 2008) to construct, evaluate, and validate a short scale measuring support for economic inequality in two different framing contexts: the world and the United States. The five-item scales demonstrate favorable psychometric properties (individual item functioning and unidimensionality), high reliability, predictive validity, as well as convergent and divergent validity in both the worldwide and United States contexts.

Using this measure, future researchers have an efficient and effective tool for measuring support for economic inequality. As mentioned previously, most research studying related constructs (e.g., general perceptions of inequality) have relied on either face valid measures, or previously collected data, such as the International Social Survey Programme (2009) and the World Values Survey (2014). While these data are extremely valuable in uncovering relationships at the national or international scale, it is our hope that the present measure will aid researchers in understanding how people develop support for economic inequality, as well as evaluating the downstream consequences of this attitude. For example, the SEIS could be used to assess the effectiveness of interventions designed to reduce support for economic inequality, or understand the causes of support for economic inequality.

**Limitations and Future Directions**

The current research provides a new and effective measure of support for economic inequality, but there are numerous aspects of the scale still to be explored. One potential limitation is the overall skewness of the responses to the scale. However, non-normality of the data is common in psychology (Woods, 2006), and the observed positive skew may indicate that most people in the population have low levels of support for economic inequality as seen in our samples. Consistent with this explanation, in a large cross-national sample of Europeans (n = 54,059) the mean response to the question “Income differentials in [my] country are too large” is 4.23 on a 5-point Likert scale, where 5 is strongly agree (skewness = -1.34, kurtosis = 1.70; ISSP, 2009). This large-scale cross-national sample suggests that, in general, people, here a large sample of Europeans, are quite strongly intolerant of inequality. As such, we do not interpret the skewness in the data to be problematic, but rather a reflection of how this construct may exist in the population.

One strength of the present scale is its flexibility. Specifically, researchers can modify the measure to different levels and contexts with ease. For example, the SEIS can be adapted to assess support for economic inequality in any other country, a specific state, city, county, community, etc. While we only explored one of these possible iterations – the United States – we encourage researchers to use the scale in the context that is appropriate for their research question, with proper adjudication of the scale in its altered form. It is not to be assumed that the items function as they do in the present paper when core content has been changed, though the results of Study 3 suggests that the scale can be easily adapted to different populations.

Through future utilization of the SEIS, researchers can explore the downstream consequences of support for economic inequality and build an understanding of the social and psychological factors that influence the development of one’s (non)support for economic inequality. For example, how does the county- or individual-level social mobility where one grows up influence her level of support for economic inequality? Moreover, future researchers interested in support for economic inequality can use the SEIS to explore how it relates to non-self-report responses to economic inequality (e.g., physiological arousal). Finally, as researchers use the SEIS across different contexts, we only stand to further strengthen evidence for its psychometric fitness, reliability, and validity.

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Table 1. Original 18 items, with their descriptive statistics from Study 1. **(R)** denotes item is reverse coded. Descriptive statistics were calculated after each relevant item was reverse scored.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Item content | Mean | SD | Skewness | Kurtosis |
| 1. | Economic inequality is one of the biggest problems in today’s world. **(R)** | 2.20 | 1.84 | 0.56 | -0.82 |
| 2. | Economic inequality is not a big problem in the world | 1.51 | 1.65 | 1.00 | -0.05 |
| **3.** | **The negative consequences of economic inequality have been largely exaggerated.** | **1.66** | **1.67** | **0.91** | **-0.10** |
| 4. | Economic inequality is mostly caused by different levels of individual effort. | 2.24 | 1.72 | 0.30 | -0.96 |
| **5.** | **Economic inequality is causing many of the world’s problems. (R)** | **1.90** | **1.64** | **0.76** | **-0.18** |
| 6. | Economic inequality is inherently unfair. **(R)** | 1.96 | 1.72 | 0.70 | -0.41 |
| 7. | I am not bothered by the current level of economic inequality in the world. | 1.77 | 1.83 | 0.87 | -0.36 |
| **8.** | **I am very disturbed by the amount of economic inequality in the world today. (R)** | **1.87** | **1.74** | **0.77** | **-0.37** |
| 9. | There are much bigger problems in the world than economic inequality. | 3.02 | 1.82 | -0.11 | -0.98 |
| **10.** | **Economic inequality is not a problem.** | **1.25** | **1.50** | **1.20** | **0.60** |
| 11. | There are some positive benefits that result from economic inequality. | 1.34 | 1.49 | 0.98 | -0.05 |
| 12. | Overall, economic inequality is good for the world. | 1.44 | 1.55 | 0.98 | 0.12 |
| 13. | I wish there was more economic inequality in the world. | 1.23 | 1.71 | 1.40 | 0.93 |
| 14. | Economic inequality is fair. | 1.63 | 1.70 | 0.91 | -0.12 |
| 15. | I am very concerned about the current level of economic inequality in the world. **(R)** | 1.93 | 1.72 | 0.78 | -0.27 |
| 16. | If I could, I would make the world a more equal place. **(R)** | 1.44 | 1.49 | 1.12 | 0.89 |
| 17. | Economic inequality does not lead to anything good. | 2.14 | 1.72 | 0.33 | -1.02 |
| **18.** | **We need to do everything possible to reduce economic inequality in the world today. (R)** | **1.87** | **1.64** | **0.81** | **-0.04** |

*Note.* Bolded items are the final five-item “Support for Economic Inequality” scale, as determined in Study 1.

Table 2. Graded model parameter estimates for the full 18 items in Study 1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item | Discrimination (*a*) | Threshold 1 (*b*1) | Threshold 2 (*b*2) | Threshold 3 (*b*3) | Threshold 4 (*b*4) | Threshold 5 (*b*5) | Threshold 6 (*b*6) |
| 1 | 2.73 | -1.79 (.10) | -1.17 (.07) | -0.81 (.06) | -0.49 (.05) | 0.14 (.06) | 0.94 (.08) |
| 2 | 3.57 | -2.05 (.11) | -1.59 (.08) | -1.17 (.06) | -0.91 (.05) | -0.38 (.05) | 0.31 (.06) |
| 3 | 3.79 | -1.96 (.11) | -1.47 (.07) | -1.12 (.06) | -0.76 (.05) | -0.28 (.05) | 0.49 (.06) |
| 4 | 1.67 | -2.73 (.20) | -1.78 (.12) | -0.97 (.08) | -0.31 (.07) | 0.28 (.07) | 1.16 (.10) |
| 5 | 3.03 | -2.01 (.11) | -1.45 (.07) | -1.07 (.06) | -0.69 (.05) | 0.06 (.05) | 0.83 (.07) |
| 6 | 2.48 | -2.02 (.12) | -1.54 (.08) | -1.07 (.07) | -0.66 (.06) | 0.03 (.06) | 0.80 (.07) |
| 7 | 2.94 | -1.86 (.10) | -1.43 (.08) | -1.05 (.06) | -0.81 (.06) | -0.26 (.05) | 0.43 (.06) |
| 8 | 3.87 | -1.78 (.09) | -1.32 (.07) | -0.96 (.05) | -0.66 (.05) | -0.06 (.05) | 0.64 (.06) |
| 9 | 1.69 | -1.85 (.12) | -1.11 (.08) | -0.27 (.07) | 0.38 (.07) | 0.94 (.09) | 1.66 (.12) |
| 10 | 4.28 | -2.25 (.13) | -1.73 (.09) | -1.30 (.06) | -0.98 (.05) | -0.54 (.05) | 0.15 (.05) |
| 11 | 3.19 | -2.87 (.24) | -1.86 (.10) | -1.38 (.07) | -0.93 (.06) | -0.52 (.05) | 0.27 (.06) |
| 12 | 3.15 | -2.21 (.13) | -1.83 (.10) | -1.32 (.07) | -0.89 (.06) | -0.42 (.05) | 0.33 (.06) |
| 13 | 1.30 | -2.93 (.25) | -2.44 (.20) | -1.98 (.16) | -1.48 (.13) | -1.05 (.10) | -0.14 (.08) |
| 14 | 2.39 | -2.20 (.14) | -1.75 (.10) | -1.32 (.08) | -0.84 (.06) | -0.33 (.06) | 0.45 (.06) |
| 15 | 3.50 | -1.74 (.09) | -1.38 (.07) | -0.96 (.06) | -0.65 (.05) | -0.02 (.05) | 0.76 (.07) |
| 16 | 3.08 | -2.14 (.12) | -1.73 (.09) | -1.46 (.08) | -0.95 (.06) | -0.29 (.05) | 0.43 (.06) |
| 17 | 2.01 | -2.59 (.18) | -1.70 (.10) | -0.92 (.07) | -0.37 (.06) | 0.12 (.06) | 0.95 (.08) |
| 18 | 3.13 | -1.89 (.10) | -1.52 (.08) | -1.11 (.06) | -0.66 (.05) | -0.03 (.05) | 0.80 (.07) |

*Note.* Standard Errors for each parameter are in brackets. *a* is the item’s discrimination parameter, *b*s are the thresholds.

Table 3. Goodness-of-fit Chi-Square tests for the five item scale in Studies 1, 2, and 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Study 1 | | | | Study 2 | | | | Study 3 | | | |
| Item | Chi-square | df | p-value | Chi-square/df | Chi-Square | df | p-value | Chi-square/df | Chi-square | df | p-value | Chi-square/df |
| 3 | 84.37 | 69 | .10 | 1.22 | 142.62 | 75 | < .001 | 1.90 | 108.18 | 76 | .009 | 1.42 |
| 5 | 84.91 | 71 | .12 | 1.20 | 108.28 | 71 | .003 | 1.53 | 98.73 | 62 | .002 | 1.59 |
| 8 | 74.61 | 64 | .17 | 1.17 | 132.38 | 71 | < .001 | 1.86 | 136.23 | 63 | < .001 | 2.16 |
| 10 | 89.32 | 69 | .05 | 1.29 | 159.82 | 82 | < .001 | 1.95 | 133.31 | 75 | < .001 | 1.78 |
| 18 | 95.29 | 71 | .03 | 1.34 | 129.45 | 72 | < .001 | 1.80 | 113.83 | 67 | < .001 | 1.70 |

Table 4. Correlations between all scales assessing convergent validity in Study 2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *1.* | *2.* | *3.* | *4.* | *5.* | *6.* | *7.* | *8.* | *9.* | *10.* | *11.* | *12.* | *13.* |
| 1. SEIS | -- |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. GC | .58\*\*\* | -- |  |  |  |  |  |  |  |  |  |  |  |
| 3. SC | .52\*\*\* | .89\*\*\* | -- |  |  |  |  |  |  |  |  |  |  |
| 4. EC | .57\*\*\* | .87\*\*\* | .75\*\*\* | -- |  |  |  |  |  |  |  |  |  |
| 5. IU | .72\*\*\* | .49\*\*\* | .45\*\*\* | .51\*\*\* | -- |  |  |  |  |  |  |  |  |
| 6. PI | -.56\*\*\* | -.32\*\*\* | -.31\*\*\* | -.30\*\*\* | .40\*\*\* | -- |  |  |  |  |  |  |  |
| 7. SR | -.78\*\*\* | -.52\*\*\* | -.47\*\*\* | -.54\*\*\* | -.68\*\*\* | -.41\*\*\* | -- |  |  |  |  |  |  |
| 8. WG | -.26\*\*\* | -.21\*\*\* | -.18\*\*\* | -.25\*\*\* | -.18\*\*\* | .05 | .26\*\*\* | -- |  |  |  |  |  |
| 9. Comp | -.23\*\*\* | -.11\*\* | -.08 | -.18\*\*\* | -.21\*\*\* | .02 | .22\*\*\* | .26\*\*\* | -- |  |  |  |  |
| 10. Warm | -.25\*\*\* | -.07 | -.08\* | -.14\*\*\* | -.24\*\*\* | -.03 | .24\*\*\* | .18\*\*\* | .71\*\*\* | -- |  |  |  |
| 11. Emp | -.28\*\*\* | -.11\*\* | -.12\*\* | -.12\*\* | -.25\*\*\* | -.39\*\*\* | .24\*\*\* | -.04 | -.03 | .13\*\*\* | -- |  |  |
| 12. PT | -.20\*\*\* | -.05 | -.06 | -.10\* | -.16\*\*\* | -.10\*\* | .17\*\*\* | .19\*\*\* | .23\*\*\* | .30\*\*\* | .40\*\*\* | -- |  |
| 13. BJW | .33\*\*\* | .29\*\*\* | .29\*\*\* | .28\*\*\* | .31\*\*\* | .36\*\*\* | -.26\*\*\* | .01 | -.01 | .00 | .01 | .08\* | -- |
| 14. Inc | .11\*\* | .09\* | .06 | .13\*\*\* | .16\*\*\* | .01 | -.09\* | .07 | -.15\*\*\* | -.16\*\*\* | .02 | .03 | .09\* |

*Note.* SEIS = Support for Economic Inequality; GC = General Conservatism; SC = Social Conservatism; EC = Economic Conservatism; IU = Belief that Inequality is Unfixable; PI = Perceived Inequality; SR = Support for Redistribution; WG = Wealth Guilt; Comp = Perceptions of the poor as competent; Warm = Perceptions of the poor as warm; Emp = Empathy; PT = Prosocial Tendencies; BJW = Belief in a Just World; Inc = Income. \* = *p* < .05, \*\* = *p* < .01, \*\*\* = *p* < .001

Table 5. Correlations between all scales assessing convergent validity in Study 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *1.* | *2.* | *3.* | *4.* | *5.* | *6.* | *7.* | *8.* | *9.* | *10.* | *11.* | *12.* | *13.* | *14.* |
| 1. SEIS | -- |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. GC | .59\*\*\* | -- |  |  |  |  |  |  |  |  |  |  |  |  |
| 3. SC | .53\*\*\* | .89\*\*\* | -- |  |  |  |  |  |  |  |  |  |  |  |
| 4. EC | .58\*\*\* | .88\*\*\* | .78\*\*\* | -- |  |  |  |  |  |  |  |  |  |  |
| 5. IU | .67\*\*\* | .51\*\*\* | .47\*\*\* | .50\*\*\* | -- |  |  |  |  |  |  |  |  |  |
| 6. PI | -.70\*\*\* | -.44\*\*\* | -.40\*\*\* | -.46\*\*\* | .51\*\*\* | -- |  |  |  |  |  |  |  |  |
| 7. SR | -.73\*\*\* | -.52\*\*\* | -.44\*\*\* | -.54\*\*\* | -.63\*\*\* | -.51\*\*\* | -- |  |  |  |  |  |  |  |
| 8. WG | -.18\*\*\* | -.18\*\*\* | -.15\*\*\* | -.19\*\*\* | -.13\*\*\* | .02 | .20\*\*\* | -- |  |  |  |  |  |  |
| 9. Comp | -.25\*\*\* | -.20\*\*\* | -.18\*\*\* | -.18\*\*\* | -.20\*\*\* | -.01\*\* | .27\*\*\* | .30\*\*\* | -- |  |  |  |  |  |
| 10. Warm | -.31\*\*\* | -.21\*\*\* | -.21\*\*\* | -.20\*\*\* | -.25\*\*\* | -.15\*\*\* | .32\*\*\* | .24\*\*\* | .73\*\*\* | -- |  |  |  |  |
| 11. Emp | -.27\*\*\* | -.10\* | -.21\* | -.11\*\* | -.28\*\*\* | -.32\*\*\* | .24\*\*\* | -.09\* | -.01 | .19\*\*\* | -- |  |  |  |
| 12. PT | -.16\*\*\* | -.06 | -.06 | -.05 | -.14\*\*\* | -.04 | .20\*\*\* | .24\*\*\* | .23\*\*\* | .28\*\*\* | .38\*\*\* | -- |  |  |
| 13. BJW | .30\*\*\* | .29\*\*\* | .27\*\*\* | .30\*\*\* | .30\*\*\* | .40\*\*\* | -.23\*\*\* | .05 | .00 | -.01 | -.01 | .15\*\*\* | -- |  |
| 14. FW | .27\*\*\* | .27\*\*\* | .25\*\*\* | .24\*\*\* | .26\*\*\* | .28\*\*\* | -.23\*\*\* | -.14\*\*\* | -.13\*\*\* | -.09\* | .07 | .09\*\* | .51\*\*\* | -- |
| 15. Inc | .15\*\*\* | .08\* | .06 | .16\*\*\* | .13\*\*\* | .11\*\* | -.13\*\* | .06 | -.14\*\*\* | -.11\*\* | .03 | .03 | .20\*\*\* | .11\*\* |

*Note.* SEIS = Support for Economic Inequality; GC = General Conservatism; SC = Social Conservatism; EC = Economic Conservatism; IU = Belief that Inequality is Unfixable; PI = Perceived Inequality; SR = Support for Redistribution; WG = Wealth Guilt; Comp = Perceptions of the poor as competent; Warm = Perceptions of the poor as warm; Emp = Empathy; PT = Prosocial Tendencies; BJW = Belief in a Just World; FW = Free Will; Inc = Income. \* = *p* < .05, \*\* = *p* < .01, \*\*\* = *p* < .00

Table 6. Linear regressions of agreement with the content of the petition onto the SEIS scale, controlling for relevant covariates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1:  SEIS only | | Model 2: SEIS plus  covariates | |
|  | *b* | SE | *b* | SE |
| Intercept | 7.29\*\*\* | 0.25 | 5.83\*\*\* | 0.86 |
| SEIS | -0.68\*\*\* | 0.07 | -0.61\*\*\* | 0.09 |
| Age | -- | -- | -0.01 | 0.01 |
| Gender | -- | -- | 0.38 | 0.23 |
| Education | -- | -- | 0.42\* | 0.18 |
| Household Income | -- | -- | 0.02 | 0.06 |
| Political Ideology | -- | -- | -0.08 | 0.08 |
| Childhood Inequality | -- | -- | 0.06 | 0.08 |
| **Adjusted R2** | .41 | | .45 | |

*Note. \* p* < .05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Table 7. Logistic regressions of whether or not the petition was signed onto the SEIS scale, controlling for relevant covariates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1:  SEIS only | | Model 2: SEIS plus  covariates | |
|  | *b* | SE | *b* | SE |
| Intercept | 0.91\*\*\* | 0.41 | -5.26\*\* | 1.82 |
| SEIS | -0.45\*\* | 0.15 | -0.51\* | 0.22 |
| Age | -- | -- | -0.01 | 0.02 |
| Gender | -- | -- | 0.99\* | 0.45 |
| Education | -- | -- | 0.88\* | 0.37 |
| Household Income | -- | -- | 0.19 | 0.13 |
| Political Ideology | -- | -- | -0.04 | 0.17 |
| Childhood Inequality | -- | -- | 0.48\*\* | 0.18 |

*Note.* For petition signing, 0 = did not sign, 1 = did sign. *\* p* < .05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Table 8. Correlations between all predictor variables in Study 5.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *1.* | *2.* | *3.* | *4.* | *5.* | *6.* | *7.* | *8.* | *9.* | *10.* | *11.* | *12.* |
| 1. SEIS | -- |  |  |  |  |  |  |  |  |  |  |  |
| 2. PI | -.55 | -- |  |  |  |  |  |  |  |  |  |  |
| 3. GI | -.56 | .40 | -- |  |  |  |  |  |  |  |  |  |
| 4. IU | -.68 | .49 | .44 | -- |  |  |  |  |  |  |  |  |
| 5. BJW | .27 | -.46 | -.26 | -.29 | -- |  |  |  |  |  |  |  |
| 6. SDO | .77 | -.55 | -.42 | -.65 | .22 | -- |  |  |  |  |  |  |
| 7. ESJ | .78 | -.56 | -.49 | -.77 | .38 | .75 | -- |  |  |  |  |  |
| 8. PWE | .40 | -.46 | -.29 | -.47 | .47 | .39 | .54 | -- |  |  |  |  |
| 9. EGAL | .71 | -.55 | -.48 | -.72 | .37 | .68 | .78 | .59 | -- |  |  |  |
| 10.SR | -.75 | .38 | .44 | .59 | -.11 | -.63 | -.68 | -.28 | -.56 | -- |  |  |
| 11. WVS | .72 | -.58 | .43 | -.64 | .31 | .69 | .67 | .43 | .66 | -.57 | -- |  |
| 12. ISSP | -.75 | .45 | .49 | .50 | -.19 | -.62 | -.66 | -.26 | -.55 | .65 | -.62 | -- |

*Note.* SEIS = Support for Economic Inequality; PI = Perceived Inequality; GI = Perceived Growth in Inequality, IU = Belief that Inequality is Unfixable; BJW = Belief in a Just World; SDO = Social Dominance Orientation; ESJT = Economic System Justification; PWE = Protestant Work Ethic; EGAL = Inegalitarianism; SR = Support for Redistribution; WVS = World Values Survey measure of Support for Inequality; ISSP = International Social Survey Programme measure of Support for Inequality. all p values < .001.

Table 9. Regression models of z-scores of the SEIS and other conceptually similar variables on raffle ticket donations.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Base Model | | SEIS | | BJW | | SDO | | ESJT | | PWE | | WVS | | ISSP | |
|  | *β* | SE | *β* | SE | *β* | SE | *β* | SE | *β* | SE | *β* | SE | *β* | SE | *β* | SE |
| Intercept | .00 | .04 | .00 | .04 | .00 | .04 | .00 | .04 | .00 | .04 | .00 | .04 | .00 | .04 | .00 | .04 |
| SEIS | -- | -- | -.18 | .05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Belief in a Just World | -- | -- | -- | -- | .05 | .04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Social Dominance Orientation | -- | -- | -- | -- | -- | -- | -.09 | .05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Economic System Justification | -- | -- | -- | -- | -- | -- | -- | -- | -.15 | .05 | -- | -- | -- | -- | -- | -- |
| Protestant Work Ethic | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | .09 | .04 | -- | -- | -- | -- |
| World Values Survey | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | .01 | .04 | -- | -- |
| International Social Survey Programme | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | .16 | .04 |
| Age | -.04 | .04 | -.05 | .04 | -.03 | .04 | -.05 | .04 | -.05 | .04 | -.03 | .04 | -.03 | .04 | -.06 | .04 |
| Gender | -.01 | .04 | -.03 | .04 | -.01 | .04 | -.02 | .04 | -.03 | .04 | -.01 | .04 | -.01 | .04 | -.01 | .04 |
| Income | .09 | .04 | .10 | .04 | .08 | .04 | .09 | .04 | .10 | .04 | .08 | .04 | .09 | .04 | .10 | .04 |
| Political Ideology | -.22 | .04 | -.12 | .05 | -.23 | .04 | -.17 | .05 | -.14 | .05 | -.25 | .04 | -.22 | .04 | -.14 | .04 |

Figure 1. The number of published articles regarding “income inequality” or “economic inequality” indexed on Web of Science between 1993 and 2016.

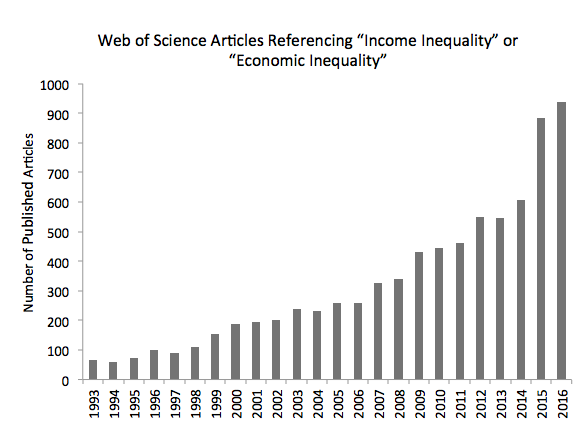


Figure 2a. Study 1 Information Function for the three candidate compositing rules. The solid line is the Maximum Likelihood estimated theoretical maximum information, the dashed line is the *aj* weighted composite information, and the dotted line is the unit-weighted composite information.

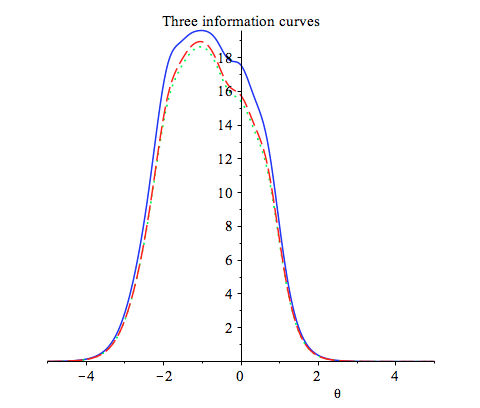
**

Figure 2b. Study 2 Information Function for the three candidate compositing rules. The solid line is the Maximum Likelihood estimated theoretical maximum information, the dashed line is the *aj* weighted composite information, and the dotted line is the unit-weighted composite information.

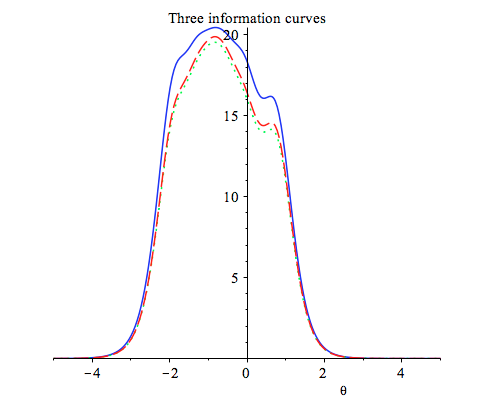
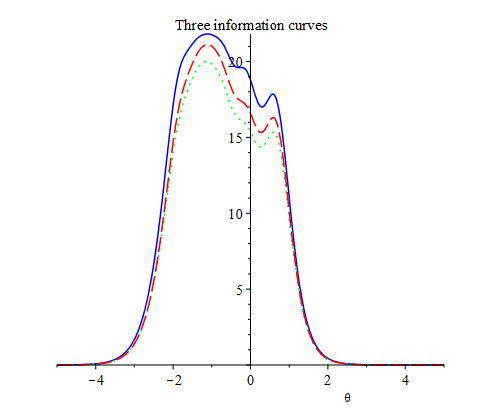


Figure 2c. Study 3 Information Function for the three candidate compositing rules. The solid line is the Maximum Likelihood estimated theoretical maximum information, the dashed line is the *aj* weighted composite information, and the dotted line is the unit-weighted composite information.



1. These data were part of a larger study in which there was a manipulation. Participants either

   read an article about (a) hardworking poor people in America, (b) about the poor in America

   more broadly, or (c) about gun violence in America. These articles can be found on the OSF

   page for this paper. Condition assignment did not impact scores on the SEIS, F(1,115) = 1.012, p

   = .32. [↑](#endnote-ref-1)