Dimensions of Social Dominance: Their Personality and Socio-political Correlates within a New Zealand Probability Sample

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Social Dominance Orientation (SDO) was introduced as a unidimensional construct predicting numerous socio-political attitudes. However, recent findings suggest that SDO is composed of two sub-dimensions: dominance (SDO-D) and anti-egalitarianism (SDO-E). Despite converging evidence concerning their empirical differentiability, there is little consensus on how to best define them. Thus, we examined the correlates of SDO-D and SDO-E using a broad array of personality, political, ethnic and gender issue variables within a New Zealand national probability sample (N = 5,741) with European and Māori participants. SDO-D primarily related to the personality trait of honesty-humility, hostile and benevolent sexism. SDO-E primarily related to political conservatism and pro-Māori policies. In many cases, the predictive power differed between SDO-D and SDO-E, and across ethnic groups.

Keywords: Social Dominance Orientation, sub-dimensions, predictive validity, HEXACO personality, group attitudes

Introduction

Social dominance orientation (SDO) is widely recognized as one of the most powerful individual difference predictors of intergroup attitudes and prejudice (McFarland & Adelson, 1996; Sibley & Duckitt, 2008). SDO was introduced as a unidimensional construct (Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius & Pratto, 1999) but there is increasing agreement in the literature that SDO is composed of two related sub-dimensions (e.g., Ho et al., 2012; Jost & Thompson, 2000). Following Ho and associates (2012), we refer to the two sub-dimensions as SDO-Dominance (SDO-D) and SDO-Egalitarianism (SDO-E).

Although there is now an emerging consensus about existence of two sub-dimensions, there is less agreement on how to best define them. For example, Jost and Thompson (2000) emphasized a difference between an ethnocentric orientation (i.e., wanting one's *own* group to dominate, SDO-D) and a non-ethnocentric, general "preference for unequal social relations" (p. 211, SDO-E). Empirically, however, their distinction was premised on the difference between *promoting* inequality between groups versus *opposing* equality. Of note, three of the SDO-D items in the SDO6 scale, on which they built most of their work, refer to dominating *other* groups, but the remaining five tap attitudes about group hierarchies in general (e.g., "some groups of people are simply inferior to other groups").

Recently, Ho et al. (2012) replicated the two-dimensional structure of SDO in seven samples. Nonetheless, their interpretation of these findings differed from that of Jost and Thompson (2000). Ho et al. suggested that the key difference between SDO-D and SDO-E concerns how blatant or aggressive they are (SDO-E being more subtle). In other words, the distinction made by Ho and associates basically mirrors the one between "old-fashioned" and "modern" prejudice (see e.g., McConahay, 1986).

The main aim of this study was to conduct an exploratory analysis based on a broader set of criterion variables than used in previous studies to shed further light on what differentiates SDO-D and SDO-E. The rationale here was simple: Improved knowledge of the correlates of SDO-D and SDO-E should be informative about how best to define the two dimensions. Our 15 criterion variables centered on personality, political ideological beliefs as well as more specific social attitudes about gender and ethnic issues. Extending previous research we compared relations of SDO-D and SDO-E with the criterion variables within two groups of different social status. Jost and Thompson (2000) contrasted high and low status ethnic groups (White versus Black Americans) when examining the relationships of SDO-D and SDO-E with two outcomes (self-esteem and ethnocentrism). In comparison, we examined such contrasts for as many as 15 criterion variables in a national probability sample with European (Pākehā) and Māori New Zealanders (of which the first group enjoys higher status, see Sibley et al., 2011a).

Our comparison of Pākehā and Māori would also speak to the generalizability of Jost and Thompson's (2000) findings regarding high and low status groups, and the different effects of SDO-D and SDO-E. They found that SDO-D was positively related to ingroup bias among both White and Black Americans, while SDO-E was positively correlated with ingroup bias among White participants, and negatively among Black participants. Analogous findings for Pākehā and Māori New Zealanders would suggest that this applies to high and low status groups in general, and not Black and White Americans in particular. Further

hypotheses about outcomes that were expected to vary across ethnic groups are presented in the closing paragraphs of the introduction.

While seeking to replicate findings regarding some political and ethnic attitudes in relation to SDO-D and SDO-E, a second aim was to move beyond such attitudes and also examine blatant or aggressive versus subtle gender attitudes. In this domain, Eagly, Diekman, Johannesen-Schmidt, and Koenig (2004) hypothesized that group-based dominance (cf. SDO-D) would predict attitudes specifically related to "issues that directly threaten men's higher social status" (p. 806) whereas group-based equality (cf. SDO-E) should account for inequality attitudes more broadly. Here we tested another perspective concerning what SDO-D and SDO-E predict in terms of gender attitudes. Specifically, we tested the possibility that SDO-D predicts hostile sexism whereas SDO-E predicts benevolent sexism (Glick & Fiske, 2001) as well as gender based system justification (Kay & Jost, 2003). Such a notion would be in line with the defining features of SDO-D and SDO-E as proposed by Ho et al. (2012).

A unique contribution of this study compared to previous studies is that we also mapped SDO-D and SDO-E in relation to basic personality traits. Importantly, much research has focused on SDO as a broad ideological belief system that predicts a variety of more specific attitudes and beliefs (see e.g. Pratto, Sidanius, & Levin, 2006). As such, SDO has sometimes been portrayed as a personality variable, and this is indeed how it was first introduced (see Pratto et al., 1994). However, there are few scholars who take this position today. SDO is rather considered to be a general ideological orientation belonging in the attitudinal domain (see e.g., Sibley & Duckitt, 2008; Sibley & Liu, 2010). This is also the position that we take in this paper. Likewise, in more recent publications, social dominance theorists discuss SDO as "as a *partial* reflection of personality" (Pratto et al., 2006, p. 293; emphasis added). Others have described SDO as surface traits, or characteristic adaptations, as opposed to core traits (see e.g., Ekehammar & Akrami, 2007).

The aforementioned perspectives all converge on the position that SDO is not a core personality trait in itself, but it should be related to such variables nonetheless. In line with this perspective, it is well documented that SDO is related to tough-minded, or non-agreeable, personality characteristics (e.g., Akrami & Ekehammar, 2006; Sibley & Duckitt, 2008). However, when it comes to the suggestion that SDO actually taps two sub-dimensions, there is no research at all on how they might relate differently to personality. Thus, in this study we provide the first mapping of SDO-D and SDO-E onto basic personality traits in terms of the Big-Five and HEXACO models (see Ashton & Lee, 2008; Donnellan, Frederick, Oswald & Lucas, 2006).

In terms of political attitudes, the study examined SDO-D and SDO-E in relation to two other ideological orientations. These were political identification (liberal – conservative) and right-wing authoritarianism (RWA; e.g., Altemeyer, 1996). Although much research has focused on the overall relation between RWA and SDO (e.g., Roccato & Ricolfi, 2005), no studies to our knowledge have examined the specific links to SDO-D and SDO-E. Yet, as RWA includes tendencies for aggression/hostility (Altemeyer, 1981; presumably a SDO-D domain) but also adherence to conservative ideology (Jost, Glaser, Kruglanski, & Sulloway, 2003; presumably a SDO-E domain), we expected relations with both sub-dimensions. Nonetheless, exploring potential differences in the strength of the associations could lead to more fine-grained theorizing when and how authoritarian and dominance-based ideologies converge or not.

Political identification has previously been found to be more closely related to SDO-E (see Ho et al., 2012; Jost & Thompson, 2000; Sidanius, Levin, van Laar & Sears, 2008). Here, we examined whether this finding replicates in a third geographic region (besides the United States and Israel). More to the point, if conservative ideology reflect motivated cognition (Jost et al., 2003) and a subtle form of dominance (Ho et al., 2012), then the relation with SDO-E could be expected to be reliable across countries (at least as long as conservative or right-wing ideology has a reasonably similar meaning across the geographic contexts).

Also, in terms of political attitudes, we aimed to examine issues specific to the New Zealand context. We were interested in support for policies favoring Māori, being either resource-based (e.g., Māori ownership to land as historically agreed upon) or symbolic (e.g., teaching Māori language in primary schools). Taken together, these attitudes address social inequalities between the two major ethnic groups in New Zealand. As such, they should relate to the sub-dimensions of SDO, and possibly stronger with SDO-E due to their political nature.

As for attitudes centering on ethnicity, this inquiry was also concerned with ethnic identification and ingroup bias. SDO has been found to be positively related to group identification in high status groups, but less so (or reversely related) in low status groups (e.g., Levin, Sidanius, Rabinowitz, & Federico, 1998). Likewise, SDO has been found to relate differently to in- and outgroup negativity and among high and low status groups (Levin & Sidanius, 1999; Levin, Pratto, Matthews, Sidanius, & Kteily, 2013). Still, Jost and Thompson (2000) showed that the direction and strength of such relations may vary for SDO-D and SDO-E. Specifically, they found SDO-D to be positively related to ingroup bias in both high and low status groups, but negatively related to SDO-E in a low status group. In this study we examined if Jost and Thompson's (2000) findings would replicate in another context.

In principle the study was exploratory and we did not derive specific predictions for all criterion variables about the differences between SDO-D and SDO-E or between the ethnic groups. Noteworthy, the number of contrasts examined would make a strictly hypothesis-driven approach both untenable with any space limitation of the manuscript, and also appear to be a large-scale guessing game. Thus, while conducting a largely explorative study, with the overarching aim of shedding more light on what differentiates SDO-D and SDO-E, we sought to safe-guard against type I errors in our inferences by

employing a very large sample.

While not having specific predictions about every single contrast examined, the study was premised on a few broad-spanning predictions. The first was that to the extent that SDO taps core personality tendencies, the relations should not vary across ethnic groups. Neither did we did expect the relations with attitudes concerning gender to vary across ethnic groups. In contrast, we expected the two groups to differ in terms of the relations of SDO-D and SDO-E with attitudes centering on ethnicity. That is, we expected relations to vary across groups when the criteria matched the dimension along which the groups differed (ethnicity; see also Reynolds & Turner, 2006).

Beyond ethnic differences, and following Ho et al. (2012), we considered the possibility that SDO-D would correlate most strongly with statements for which there is normative pressure concerning the "right" way to answer. The rationale here is that people high on SDO-D simply do not care much about holding back their thoughts and feelings about themselves and others. In contrast, we expected SDO-E to be more predictive than SDO-D concerning more socially accepted expressions of anti-egalitarian attitudes (i.e. "modern" expressions of social dominance). In other words, SDO-E should be expressed when it is safe to do so. Thus, we considered honesty humility and hostile sexism to be plausible marker criteria of SDO-D. In contrast, conservatism, benevolent sexism, ethnic identification, and opposition to pro- Māori policies were expected to be SDO-E domains (see also Ho et al., 2012).

Method

Sampling Procedure and Participants

We analyzed data from the 2009 New Zealand Attitudes and Values Study (NZAVS). The Time 1 (2009) NZAVS contained responses from 6,518 participants sampled from the 2009 New Zealand electoral roll. The electoral roll is publicly available for scientific research and in 2009 contained 2,986,546 registered voters. This represented all citizens over 18 years of age who were eligible to vote regardless of whether they chose to vote, barring people who had their contact details removed due to specific case-by-case concerns about privacy. The sample frame was spilt into three parts. Sample Frame 1 constituted a random sample of 25,000 people from the electoral roll (4,060 respondents). Sample Frame 2 constituted a second random sample of a further 10,000 people from the electoral roll (1,609 respondents).

Sample Frame 3 constituted a booster sample of 5,500 people randomly selected from meshblock area units of the country with a high proportion of Māori, Pacific Nations and Asian peoples (671 respondents). Statistics New Zealand (2014) define the meshblock as "the smallest geographic unit for which statistical data is collected and processed by Statistics New Zealand. A meshblock is a defined geographic area, varying in size from part of a city block to large areas of rural land. Each meshblock abuts against another to form a network covering all of New Zealand including coasts and inlets, and extending out to the two hundred mile economic zone. Meshblocks are added together to 'build up' larger geographic areas such as area units and urban areas. They are also the principal unit used to draw-up and define electoral district and local authority boundaries." Meshblocks were selected using ethnic group proportions based on 2006 national census data. A further 178 people responded but did not provide contact details and so could not be matched to a sample frame (see also Sibley, 2014).

In sum, postal questionnaires were sent to 40,500 registered voters or roughly 1.36% of all registered voters in New Zealand. The overall response rate (adjusting for the address accuracy of the electoral roll and including anonymous responses) was 16.6%. We limited the analyses to the 5741 (3435 women) participants who were either Pākehā (n = 4,629) or Māori (n = 1,112). The mean age was 48.62 years (SD = 15.83).

There are three things to note concerning the sample characteristics for Pākehā and Māori. First, the respondents in this sample did not differ in terms of employment, $\chi^2(1) = 1.91$, $p = .17$. Second, there was a higher proportion with a degree or certificate from high school among Pākehā (50%) compared to Māori (34%), $\chi^2(1) = 91.88$, $p < .001$. Importantly, however, these descriptive statistics are fairly close to the percentages in the general population (55 and 38% for Pākehā and Māori respectively for adults 25-34 years old; see Statistics New Zealand, 2013). Finally, the gender distribution was somewhat skewed with 40% men and 60% women, $\chi^2(1) = 217.33$, $p < .001$. To adjust for this, we used sample weights for gender in all analyses concerning relations with the criterion variables. For extensive details about sample characteristics, see Sibley, McPhee, & Greaves, (2014).

Questionnaire measures

SDO was assessed using 6-items from the SDO-6 scale (see Pratto et al., 1994). The items assessing SDO-D were "it is OK if some groups have more of a chance in life than others", "inferior groups should stay in their place", and "to get ahead in life, it is sometimes okay to step on other groups". The SDO-E items included "we should have increased social equality", "it would be good if groups could be equal", and "we should do what we can to equalize conditions for different groups". Response alternatives ranged from 1 (strongly disagree) to 7 (strongly agree), and SDO-E items were reversed coded to assess anti-egalitarianism. The response format above was used for all scales unless otherwise specified. For means, standard deviations, and internal consistency reliabilities for all variables, see Table 1.

Table 1. Means, Standard Deviations and Internal Consistency Reliabilities for Study Variables.

Instrument	*M*	*SD*	*α*
Social Dominance Orientation D	2.38	1.12	.52
Social Dominance Orientation E	2.79	1.21	.76
Agreeableness	5.27	0.99	.67
Conscientiousness	5.10	1.07	.66
Extraversion	4.05	1.16	.72
Neuroticism	3.43	1.10	.65
Openness to Experience	4.76	1.13	.68
Honesty-Humility	5.11	1.33	.78
Right-Wing Authoritarianism	3.56	1.16	.69
Political Identity (Conservatism)	3.76	1.23	-
Māori Resource Policy	5.25	1.55	.83
Māori Symbolic Policy	3.07	1.43	.78
Ethnic Identity	3.66	1.66	.83
Ingroup bias	0.70	1.41	-
Gender System Justification	4.80	1.27	.59
Benevolent Sexism	4.11	1.17	.72
Hostile Sexism	3.36	1.27	.81

The Big-Five dimensions were measured using the Mini-IPIP scale developed by Donnellan et al. (2006). The honesty-humility scale used marker items from Ashton and Lee (2008). All scales were validated for use in New Zealand by Sibley et al. (2011b). Each personality scale included 4 items, including statements such as "I don't talk a lot" (reverse-scored extraversion), "I sympathize with others' feelings" (agreeableness), "I like order" (conscientiousness), "I get upset easily" (emotionality), "I have a vivid imagination" (openness to experience), and "I deserve more things in life" (reverse-scored honesty-humility).

To assess RWA, a balanced 6-item scale was adopted from Altemeyer (1996; e.g., "it would be best for everyone if the proper authorities censored magazines so that people could not get their hands on trashy and disgusting material"). Political orientation was assessed with the item "Please rate how politically conservative versus liberal you see yourself as being", with 1 representing extremely liberal and 7 representing extremely conservative. Attitudes toward resource-specific and symbolic Māori policies were assessed with four items each. These were selected from Liu and Sibley (2006; e.g., I support… "Maori ownership of the seabed and foreshore" [resource-specific], and "teaching Maori language in New Zealand primary schools" [symbolic]). Gender-specific system justification was measured with two items selected from Jost and Kay (2005), one of these two was "in general, relations between men and women in New Zealand are fair". Benevolent and hostile sexism were represented by five items each from Glick and Fiske (1996). Items included "women should be cherished and protected by men" (benevolent sexism) and "women exaggerate problems they have at work" (hostile sexism).

Three items from Leach et al. (2008) measuring identity centrality were used to index ethnic identity, with an example being "I often think about the fact that I am a member of my ethnic group". Affective thermometer ratings toward Pākehā, and Māori were used to create an index for ethnic ingroup bias by subtracting the outgroup rating from the ingroup one. Both groups showed an ingroup bias in terms of a mean difference between the ingroup and outgroup ratings, yet it was more pronounced for Pākehā than Māori participants, $t(4512) = 38.58$, $p < .001$, $d = .57$, and , $t(1090) = 5.59$, $p < .001$, $d = .17$ respectively.

Results

Preliminary analyses

Using both Pākehā and Māori participants, we first ran a confirmatory factor analysis to examine the suggested factor structure with two SDO sub-dimensions (with three indicators per construct, factors correlated). We used a robust maximum likelihood (referred to as T_2* by Yuan & Bentler, 2000) estimator as we suspected somewhat non-normally distributed data. The proposed factor model had a good fit to the data, scaled $\chi^2(8) = 121.54$, $p < .001$, $CFI = .98$, $RMSEA = .05$, 90% CI [.04, .06]. The correlation between the factors was .56, $p < .001$.

Next, we ran a multi-group confirmatory factor analysis to examine if the relationships between the two factors varied across ethnic groups. Notably, previous research suggests that the relation between the two dimensions is stronger in groups with higher status (see Jost & Thompson, 2000). Indeed, we found support for this prediction in a New Zealand probability sample as well. Good fit was achieved when allowing the correlation to vary across ethnic groups while keeping loadings and intercepts equal, $\chi^2(26) = 182.21$, $p < .001$, $CFI = .96$, $RMSEA = .05$, 90% CI [.04, .05]. For Pākehā, the correlation was .61, $p < .001$, and for Māori it was .39, $p < .001$. Also, assuming the correlation between SDO-D and SDO-E to be equal among Pākehā and Māori resulted in a significantly worse fit, scaled $\Delta\chi^2(1) = 17.72$, $p < .001$.

Comparison of SDO-D and SDO-E Criteria Relations among Pākehā and Māori

To examine the relations of SDO-D and SDO-E with our 15 outcomes, we ran multi-group (Pākehā versus Māori) regression analyses (i.e. SDO-D and SDO-E manifest) with each criterion as a dependent variable. More specifically, we ran five models for each criterion. First, we ran a baseline model (0 *df*) in which both coefficients in each ethnic group were free to vary. We then tested the difference of the SDO-D and SDO-E coefficients among Pākehā by running a model with the unstandardized relations constrained to be equal (1

df). Consequently, the X^2 statistic for this model would give the significance level for the hypothesis that the two paths are different. By the same logic, we then tested the difference between the SDO-D and SDO-E coefficients in the Māori group. Subsequently, we constrained the SDO-D paths to be equal for Pākehā and Māori to test the difference across ethnic groups for this predictor. Finally, in a fifth model, we constrained the SDO-E paths to be equal across ethnic groups. The results of these analyses are presented in Table 2.

The results showed that both SDO-D and SDO-E predicted most variables, and many effects were highly significant, as could be expected in a sample of this size. Still, most of these effects were relatively weak. As for the contrasts between SDO-D and SDO-E within each ethnicity, we found that 18 out of 30 were significant at $p <$ .001. Because of the sample size and number of tests, we do not put much emphasis on effects that were not significant at this level. Nonetheless, many of the contrasts held up in both ethnic groups (see Table 2). While some of these were relatively small in an absolute sense, a couple of variables appeared to be marker criterion for SDO-D. Honesty-humility and hostile sexism both revealed moderately strong relations with SDO-D, but only marginal relations with SDO-E. Benevolent sexism revealed the same pattern overall, but also a weak negative relation with SDO-E among Māori. In contrast, political identification was most clearly related to SDO-E.

There were also differences across ethnic groups for many variables in relation to either SDO-D or SDO-E. Both SDO-D and SDO-E displayed variation in relation to some of the other ideological and attitudinal variables, dependent on membership in a group of either high or low social status. More specifically, of the 30 contrasts tested, we found 7 to be significant at p <.001. Again, we did not pay much attention to effects that failed to reach significance at this level in such a big sample as this one. Not surprising, the more pronounced differences between the ethnic groups were often associated with ethnicity-specific attitudes. In contrast, it is noteworthy that there was little variation across ethnic groups in relation to personality (except conscientiousness – SDO-E), political orientation and hostile sexism (for details, see Table 2).

Finally, in addition to the regression analyses, we also examined the zero-order relations of SDO-D, SDO-E, and the full SDO scale with all criterion variables. For a majority of the criterion variables the full SDO revealed correlations in between the estimates for SDO-D and SDO-E, but in some cases the full SDO scale rather matched or slightly outperformed both of the component measures. For example, the relation with agreeableness shows a small difference between SDO-D and SDO-E to start with, and neither of the components showed an advantage over the full SDO scale. On the other hand, for many criterion variables we found more substantial differences between SDO-D and SDO-E in the regression analyses, and these were

Table 2. Relations for SDO-D and SDO-E with Criterion Variables.

		Pākehā (European New Zealanders)			Māori				
		B	*β*	*p*	*B*	*β*	*p*	X^2	*p*
Agreeableness	D	-0.19	-0.21	<.001	-0.13	-0.16	<.001	3.15	.08
	E	-0.12	-0.15	<.001	-0.14	-0.17	<.001	0.37	.55
	X^2	6.98		.01	0.05		.82		
Conscientiousness	D	-0.06	-0.06	<.001	0.01	0.01	.68	4.11	.04
	E	0.05	0.06	.001	-0.08	-0.09	.01	13.13	<.001
	X^2	17.02		<.001	3.59		.06		
Extraversion	D	0.02	0.02	.29	0.03	0.03	.31	0.12	.73
	E	0.00	0.00	.95	-0.04	-0.04	.15	1.65	.20
	X^2	0.38		.54	2.52		.11		
Neuroticism	D	0.03	0.03	.06	0.07	0.08	.01	1.73	.19
	E	-0.06	-0.07	<.001	-0.03	-0.03	.33	1.06	.30
	X^2	11.79		<.001	5.36		.02		
Openness to Experience	D	-0.13	-0.13	<.001	-0.18	-0.19	<.001	1.99	.16
	E	-0.04	-0.05	.01	-0.08	-0.09	.01	1.28	.26
	X^2	8.22		<.001	4.00		.05		
Honesty-Humility	D	-0.33	-0.28	<.001	-0.31	-0.26	<.001	0.29	.59
	E	0.02	0.02	.20	0.05	0.04	.17	0.45	.50
	X^2	111.38		<.001	35.43		<.001		
Right-Wing Authoritarianism	D	0.10	0.09	<.001	0.19	0.20	<.001	7.48	.01
	E	0.14	0.14	<.001	0.06	0.07	.04	4.74	.03
	X^2	1.88		.17	7.32		.01		
Political identification	D	0.06	0.05	.003	-0.04	-0.04	.34	4.77	.03
	E	0.24	0.24	<.001	0.19	0.18	<.001	1.46	.23
	X^2	32.77		<.001	14.68		<.001		
Māori resource policy	D	0.07	0.06	<.001	-0.18	-0.12	<.001	25.21	<.001
	E	0.20	0.20	<.001	0.26	0.18	<.001	1.18	.28
	X^2	22.47		<.001	34.71		<.001		
Māori symbolic policy	D	0.17	0.14	<.001	-0.03	-0.03	0.31	31.67	<.001
	E	0.28	0.24	<.001	0.20	0.21	<.001	3.85	.05
	X^2	9.44		<.001	21.67		<.001		
Ethnic identity	D	0.21	0.15	<.001	0.16	0.12	<.001	0.93	.34
	E	-0.12	-0.10	<.001	-0.38	-0.28	<.001	27.86	<.001
	X^2	78.05		<.001	71.79		<.001		
Ingroup bias	D	0.21	0.16	<.001	0.01	0.01	.85	25.00	<.001
	E	0.14	0.11	<.001	-0.09	-0.09	.01	34.10	<.001
	X^2	4.21		.04	3.31		.07		
Gender system justification	D	0.15	0.13	<.001	0.19	0.17	<.001	1.12	.29
	E	0.08	0.08	<.001	-0.04	-0.04	.26	7.89	.01
	X^2	6.16		.01	15.56		<.001		
Benevolent sexism	D	0.27	0.26	<.001	0.25	0.25	<.001	0.30	.58
	E	-0.02	-0.02	.28	-0.14	-0.15	<.001	9.95	<.001
	X^2	98.20		<.001	46.30		<.001		
Hostile sexism	D	0.32	0.28	<.001	0.27	0.24	<.001	2.04	.15
	E	0.08	0.07	<.001	0.00	0.00	.90	3.05	.08
	X^2	60.26		<.001	20.24		<.001		

Note. D = SDO-D, E = SDO-E. All coefficients are based on robust maximum likelihood estimation (see Muthén & Muthén, 2012) and weighted for gender. The X^2 values are mean-adjusted and equivalent to Yuan and Bentler's (2000) T_2*. For political orientation, high scores represent conservative (as opposed to liberal) identification. Pākehā *n* varies between 4340 and 4593 Māori *n* varies between 1019 and 1102.

largely consistent with differences at the zero-order level as well. Again, most effects were relatively weak, few correlations were above or approaching .30. The contrasts between the two ethnic groups were also consistent in the regression and correlational analyses. To avoid redundancy the results from the correlational analyses, along with details on how we tested these contrasts, are presented in Appendix A.

Discussion

We explored the relations for two sub-dimensions of the SDO scale with a number of criterion variables in a national probability sample in New Zealand. The main rationale was that a study on the relations of SDO-D and SDO-E with a broad range of personality and socio-political variables would help clarify the distinctions between these two dimensions. Clearly, the full SDO scale still provides a useful tool in many settings, and parsimony speaks for it being preferable to using its components in some cases (e.g., in relation to Agreeableness). Nonetheless, there were also many cases where SDO-D and SDO-E revealed somewhat different relations with our criterion variables.

Overall the results revealed some clear patterns, but also a couple of surprises. Consistent with the findings of Ho and colleagues (2012), and in contrast to the argument of Sears, Haley, and Henry (2008), there seemed to be more of a story to tell about SDO-D than SDO-E. Compared to SDO-E, SDO-D displayed both stronger and more diverse relationships across the range of personality and socio-political variables. This finding is noteworthy considering that SDO-E was markedly more reliable than SDO-D. Put differently, while some might consider the reliabilities of our SDO instruments to be problematic it should be recognized that psychometrics tells us that the contrasts where SDO-D outperforms SDO-E would be *stronger,* if anything, if we had better instruments. Also, in this study we used more variables than Ho et al. (2012) that were likely to represent subtle expressions of dominance (e.g., agreeableness and benevolent sexism). Nonetheless, even with these additional "SDO-E candidates", SDO-D often came out on top.

An exception to the tendency for SDO-D to outperform SDO-E was found with regards to political identification (see also Sears, et al., 2008). Noteworthy, it is well known that conservatism maps onto a broad range of attitudes (e.g., Jost et al., 2003). However, the current study indicates that the binding factor that holds it all together may not be conservative ideology in itself, but rather the D dimension of SDO. More specifically, conservatism in itself seemed to be an SDO-E domain, whereas most social attitudes are more closely related to SDO-D. This suggests that SDO-D bridges the relation between conservatism (as well as SDO-E) and various social attitudes.

The second clearest example of an SDO-E domain of attitudes dealt with pro-Māori policies. SDO-E was more strongly associated with an opposition toward both resource and symbolic policies favoring Māori, and this was true within both ethnic groups. This finding is intriguing when considering the link between SDO-E and conservative identity. Reasonably, support for giving positive attention to disadvantaged groups is a key ingredient in both conservatism-liberalism and SDO-E, and it seems to overrun in-group interests (see Jost & Thompson, 2000).

In terms of mapping SDO-D and SDO-E onto basic personality, the strongest relations were found between honesty-humility and SDO-D. Thus, the current focus on agreeableness as the primary (core) personality correlate SDO (see Sibley & Duckitt, 2008), needs to be supplemented with more research on honesty-humility. Obviously, we cannot draw any causal inferences from these analyses, but the fact that honesty-humility was practically unrelated to SDO-E also suggests that the personality roots of SDO-D and SDO-E may differ. Interestingly, a similar pattern was also found for openness to experience, and to some extent, agreeableness. Conscientiousness, extraversion and neuroticism showed only trivial relations with the two SDO dimensions.

Consistent with our predictions, the relations with the personality variables showed only minor variation across the two ethnic groups. The observed difference for SDO-E in relation to conscientiousness seems uninformative when considering how weak the relations were in both groups, but of opposite signs. In principle, it seems to be the same kind of individuals, in terms of basic personality, who are drawn to social dominance (especially SDO-D) in high and low status groups. This also suggests that when the relations between SDO and prejudice fluctuate across groups (e.g., Levin & Sidanius, 1993) it is not because different group identities shift peoples' sense of personality (as proposed in self-categorization theory, e.g., Reynolds & Turner, 2006).

With regards to somewhat puzzling and unexpected results, the coefficients found here were generally low compared to the results of other studies. For example, the relations for the SDO dimensions with RWA were lower than what has been previously found for the full scale (see e.g., Roccato & Ricolfi, 2005). However, this could in part be due to the lower reliabilities of the instruments used here, which would attenuate our effect size estimates as we necessarily used short-form scales. Also, another reason for some of the weak effects could be the cultural context of the study (see Mirisola, Sibley, Boca, & Duckitt, 2007). For example, the bicultural national identity in New Zealand (e.g., Liu & Sibley, 2009) might explain the counter-intuitive weak and negative relationship between SDO-E and ethnic identity among Pākehā. More specifically, a bicultural or even multicultural national identity may imply a more egalitarian stand compared to a mono-cultural identity, and hence lower or reverse the typical positive relationship between SDO and high status group identification.

Another surprising result concerned benevolent sexism. More specifically, we expected benevolent sexism to be in the SDO-E domain, as this dimension has been portrayed as dealing with more subtle expressions of dominance. However, benevolent sexism had a moderately strong relation with SDO-D while being unrelated to SDO-E among Pākehā and only weakly (negatively) related among Māori. The negative relation among Māori is noteworthy for the theorizing about ambivalent sexism. Glick and Fiske (2001) suggested that prejudice is about social inequality, and

noted that people express benevolent sexism as a means to keep women "in their place". However, it is possible that this effect is weaker in groups that are disadvantaged, especially among individuals supporting group equality (as indexed by low SDO-E scores). Specifically, what appears to be benevolent sexism among such individuals might be an expression of genuine benevolence, rather than a mild, or disguised form of sexism.

These results also speak to a debate as to whether SDO-E is the system justifying aspect of SDO (see Jost & Thompson, 2000). In contrast to this idea, SDO-D was more strongly related to gender-specific system justification and this was true for both Pākehā and Māori. Also, many of the other criterion variables here could be described as hierarchy-enhancing ideologies (see Sidanius & Pratto, 1999) operating to maintain the status quo of group inequalities. Among several of these variables, such as benevolent and hostile sexism SDO-D was the stronger predictor. On the other hand, the data for the Māori policies were much in line with the system-justification perspective as proposed by Jost and Thompson (2000). Overall then, the arguments about system justifying tendencies in SDO seems to depend on the attitude domain that it is mapped onto (e.g. gender versus ethnic issues).

In evaluating the strengths and weaknesses of this study it is an obvious limitation that we did not have balanced scales for SDO-D and SDO-E (as opposed to e.g., Ho et al., 2012). This was due to the fact that we used data embedded in a large questionnaire, and only had a few SDO items available. On the other hand, the broad range of criterion variables (including all Big-Five factors) represents a clear strength compared to previous studies. More important still, the findings were based on national probability sample, and include a large number of respondents from an ethnic minority group (Māori). Thus, in terms of the breadth of criterion variables and statistical power the current study provided the most extensive examination SDO-D and SDO-E to date. Based on the current results we would argue that the distinction between these two sub-dimensions is more complex than a drive to dominate outgroups versus general anti-egalitarianism. Beside the conceptual problem that most SDO-D items do not specifically refer to in- and outgroups, there are some findings here that are difficult to reconcile with such a conceptualization. Neither does it seem correct that the distinction is all about blatant and aggressive versus subtle expressions of dominance (see Ho et al., 2012). Instead, the closest thing to defining features of the two dimensions in these data appears to be the following: SDO-D is a demeaning attitude promoting hierarchies between groups whereas SDO-E is about opposing the recognition of groups as disadvantaged.

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Appendix A

Pearson correlations for SDO-D and SDO-E with the criterion variables were analyzed within each ethnic group in our sample. We then examined contrasts within (SDO-D versus SDO-E) and across groups (Pākehā versus Māori). We used Steiger's (1980) formula to compare dependent correlations (i.e. within groups) and Fisher's z-transformation for the independent correlations (i.e. between groups). All contrasts were tested at http://www.quantpsy.org/

corrtest/corrtest.htm, and http://www.quantpsy.org/corrtest/corrtest2.htm). The results of these analyses are summarized in Table A1.

Table A1. Zero-order relations of SDO (full scale), SDO-D and SDO-E with criterion variables and z-contrasts.

		Pākehā (European New Zealanders)		Māori			
Criterion Variable		***r***	***p***	***r***	***p***	***z***	***p***
Agreeableness	SDO	-.30	<.001	-.27	<.001	-1.04	.30
	D	-.27	<.001	-.21	<.001	-1.92	.06
	E	-.24	<.001	-.21	<.001	-0.81	.42
	*z**	-1.93	.05	0.15	.88		
Conscientiousness	SDO	.00	.83	-.05	.10	1.40	.16
	D	-.04	.01	.00	.97	-1.14	.25
	E	.03	.05	-.08	.01	3.21	<.001
	*z**	-4.15	<.001	2.14	.03		
Extraversion	SDO	.01	.41	-.02	.57	.86	.39
	D	.02	.19	.02	.59	0.09	.93
	E	.00	.94	-.04	.14	1.35	.18
	*z**	1.15	.25	1.62	.10		
Neuroticism	SDO	-.03	.03	.03	.33	.95	.34
	D	.00	.86	.06	.04	-1.97	.05
	E	-.05	<.001	-.02	.55	-1.03	.30
	*z**	3.13	<.001	2.18	.03		
Openness to Experience	SDO	-.15	<.001	-.23	<.001	2.50	.01
	D	-.15	<.001	-.22	<.001	2.29	.02
	E	-.11	<.001	-.14	<.001	0.93	.35
	*z**	-2.55	.01	-2.30	.02		
Honesty-Humility	SDO	-.22	<.001	-.18	<.001	-1.24	.22
	D	-.27	<.001	-.25	<.001	-0.54	.59
	E	-.10	<.001	-.02	.42	-2.17	.03
	*z**	-11.15	<.001	-6.25	<.001		
Right-Wing Authoritarianism	SDO	.20	<.001	.22	<.001	-0.72	.48
	D	.15	<.001	.23	<.001	-2.30	.02
	E	.19	<.001	.12	<.001	2.04	.04
	*z**	-2.25	.03	2.90	.00		
Political identification	SDO	.24	<.001	.13	<.001	3.27	.001
	D	.14	<.001	.02	.54	3.60	<.001
	E	.26	<.001	.18	<.001	2.25	.02
	*z**	-7.02	<.001	-4.21	<.001		
Māori resource policy	SDO	.22	<.001	.04	.18	5.37	<.001
	D	.14	<.001	-.08	.01	6.66	<.001
	E	.22	<.001	.15	<.001	2.27	.02
	*z**	-5.29	<.001	-6.25	<.001		
Māori symbolic policy	SDO	.32	<.001	.14	<.001	5.87	<.001
	D	.24	<.001	.02	.56	6.68	<.001
	E	.31	<.001	.20	<.001	3.44	.001
	*z**	-4.52	<.001	-4.88	<.001		
Ethnic identity	SDO	.04	.01	-.12	<.001	-2.46	.01
	D	.11	<.001	.05	.08	1.55	.12
	E	-.04	.02	-.24	<.001	6.29	<.001
	*z**	8.89	<.001	8.08	<.001		

		Pākehā (European New Zealanders)		Māori			
Criterion Variable		***r***	***p***	***r***	***p***	***z***	***p***
Ethnic ingroup bias	SDO	.23	<.001	-.06	.04	5.02	<.001
	D	.21	<.001	-.01	.70	6.48	<.001
	E	.18	<.001	-.09	<.001	7.92	<.001
	*z**	1.62	.10	2.00	.05		
Gender system justification	SDO	.18	<.001	.11	<.001	2.07	.04
	D	.17	<.001	.16	<.001	0.10	.92
	E	.13	<.001	.00	.90	3.81	<.001
	*z**	2.20	.03	4.28	<.001		
Benevolent sexism	SDO	.20	<.001	.10	<.001	3.12	.001
	D	.25	<.001	.23	<.001	0.79	.43
	E	.10	<.001	-.08	.01	5.29	<.001
	*z**	1.20	<.001	8.48	<.001		
Hostile sexism	SDO	.29	<.001	.20	<.001	2.95	.003
	D	.31	<.001	.25	<.001	2.03	.04
	E	.19	<.001	.07	.02	3.72	<.001
	*z**	7.60	<.001	4.81	<.001		

Note. D = SDO-D. E = SDO-E. z* refers to the contrast between SDO-D and SDO-E, calculations of these were based on Steiger's (1980) formula. High scores on political orientation represent conservative (as opposed to liberal) identification. Pākehā *n* varies between 4340 and 4595 Māori *n* varies between 1019 and 1103.