

## Research article

# Protestant work ethic's relation to intergroup and policy attitudes: A meta-analytic review

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### Abstract

*The Protestant work ethic (PWE), the belief that hard work leads to success, is prevalent in many cultures and has been related to negative attitudes toward disadvantaged groups (prejudice) and social policies targeting them. Given recent theorizing and findings suggesting that PWE is not necessarily associated with prejudice among all people or in all contexts, this meta-analysis examined the direction and strength of PWE's relation to prejudice (37 eligible studies) and policy attitudes (16 studies) among published and unpublished studies across 38 years. Results revealed not only significant positive relationships between PWE and both types of intergroup attitudes but also significant moderators of these relationships. There were significantly larger effect sizes for PWE's relationship with both prejudice and policy attitudes among samples in Western countries (Canada, England, New Zealand, USA), and marginally significantly larger effect sizes for PWE's relationship with both types of attitudes the older the mean age of the sample (within Western countries). PWE's relationship with intergroup attitudes also varied by the target group of the attitudes. Findings support a more nuanced view of PWE's relationship with intergroup attitudes, suggesting that PWE does not always promote greater prejudice; rather its consequences are culture and context bound. Copyright © 2011 John Wiley & Sons, Ltd.*

The Protestant work ethic (PWE; Weber, 1958), the belief that hard work leads to success, is a central guiding principle in several countries, such as Canada, England, and the United States (e.g., Furnham, 1982, 1985). PWE has long been discussed in the literatures in social psychology, social work, sociology, and political science, as a possible key ingredient in negative attitudes toward disadvantaged groups, such as low-income or homeless individuals (e.g., MacDonald, 1972; Somerman, 1993), African Americans (e.g., Katz & Hass, 1988; Monteith & Spicer, 2000), and women (e.g., Christopher & Mull, 2006), as well as disapproval of policies aimed at helping disadvantaged members of society, such as welfare programs (e.g., Hasenfeld & Rafferty, 1989; Heaven, 1990). In this vein, PWE has been viewed as a justifier of inequality or handy *post hoc* explanation to rationalize one's prejudice and society's differential treatment of disadvantaged persons (e.g., Crandall, 2000; Levy, West, Ramírez, & Karafantis, 2006). That is, less advantaged groups (e.g., low-income individuals) are seen as not working hard enough and therefore at fault for their disadvantage (e.g., Kinder & Sears, 1981).

Yet, researchers have increasingly begun to suggest that PWE may not always promote negative intergroup attitudes (e.g., Crandall & Martinez, 1996) and that PWE may even have an additional egalitarian meaning or implication (e.g., Levy, Freitas, Mendoza-Denton, Kugelmass, & Rosenthal, 2010; Levy, West, & Ramírez, 2005; Levy, West, et al., 2006;

Ramírez, Levy, Velilla, & Hughes, 2010). These recent findings and theorizing suggest a more nuanced view of PWE's relation to intergroup attitudes, namely that culture, age, and social status (e.g., racial/ethnic group) may be key factors in determining if and when PWE relates to negative intergroup attitudes. The main goal of this meta-analysis is to use the available published and unpublished research to test whether PWE has a consistent relationship with greater prejudice and disapproval of policies aimed at helping disadvantaged groups, and to test several possible moderators of these relationships. Thus, this meta-analysis seeks to test a more nuanced theoretical view of PWE's implications for intergroup attitudes and therefore to inform and guide future theoretical work on PWE.

Protestant work ethic has long been theorized to be associated with greater prejudice toward disadvantaged groups or to be a justifier of inequality, but the studies testing and supporting such hypotheses have been in mostly Western contexts. Researchers have recently begun to qualify those hypotheses regarding PWE, suggesting that PWE's intergroup meaning and implications may be culturally bound (e.g., Crandall, 1994; Crandall & Martinez, 1996; Levy et al., 2010; Levy et al., 2005; Ramírez & Levy, 2010; Ramírez et al., 2010). Specifically, researchers have suggested that in Western, individualistic cultures, where personal responsibility for outcomes is emphasized, a belief in PWE is probably

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related to prejudice toward disadvantaged persons, by justifying viewing them as not working hard enough and thus accountable for their poorer life outcomes (e.g., Christopher & Schlenker, 2005; Crandall & Martinez, 1996; Quinn & Crocker, 1999). In individualistic, Western cultures, PWE takes on a justifier of inequality meaning that is related to and influenced by cultural values that attribute disadvantage to individuals' lack of hard work or laziness. However, in less individualistic cultures where prejudice is not as closely related to or supported by these attributions of responsibility and controllability, or where individual responsibility is less of a focus of cultural values (e.g., in Colombia, see Ramírez et al., 2010; in India, see Lazarus, 2001), PWE should be less likely to take on a meaning that justifies or is associated with prejudice. For instance, in many Latin American countries, such as Colombia, people's beliefs about work traditionally have been connected to Catholicism, in which work has been thought to represent punishment rather than a pathway to prestige; because of this, people are encouraged to accept their disadvantage as a means to salvation and therefore are not directly blamed for their disadvantage (e.g., Ramírez et al., 2010). In non-Western countries and cultures, then, PWE may be unlikely to take on the justifier of inequality meaning (e.g., Crandall & Martinez, 1996; Ramírez et al., 2010).

In addition to beginning to spell out the potential boundaries of PWE's meaning as a justifier of inequality across cultures, researchers have suggested that PWE may also sometimes have an egalitarian meaning even in Western cultures, with the implication that all people are equal and can succeed (e.g., Levy et al., 2010; Levy et al., 2005; Levy, West, et al., 2006). Ever-popular "rags to riches" stories in Western countries (e.g., J.K. Rowling, Oprah Winfrey) can suggest that hard work is a social equalizer. Indeed, PWE is part of an enduring literature in not just the social domain but also in the academic domain, with PWE being used to motivate children to work diligently toward valued outcomes, and to suggest that people of all backgrounds are equally capable of succeeding (e.g., see work on the achievement motive, McClelland, Atkinson, Clark, & Lowell, 1953). This may be particularly emphasized not only to children in educational contexts but also to people of all ages and backgrounds in that it conveys that effort potentially equalizes people from different social groups. Indeed, this equalizer meaning of PWE is generally equally endorsed by privileged groups and disadvantaged groups (Levy et al., 2010; also see Ramírez et al., 2010). However, as described above, in Western cultures and contexts in which PWE has links to attributions of controllability and responsibility, PWE is expected to also have a justifier of inequality meaning for people, which may be acquired simultaneously with the equalizer meaning of PWE or be a later acquired meaning through age, experience, and personal needs to justify prejudice in that culture (e.g., Levy et al., 2010; Levy et al., 2005; Levy, West, et al., 2006; Ramírez et al., 2010).

This theorizing also suggests that there would be within-culture differences, namely that the justifier of inequality meaning of PWE may be less likely to be emphasized to or accepted by members of disadvantaged groups. This meaning should resonate most with advantaged group members in that it justifies their place in society. Unsurprisingly, this notion is supported, and the justifier of inequality meaning of PWE is

generally more widely endorsed by privileged groups than disadvantaged groups (e.g., Levy et al., 2010).

As one example consistent with the idea that PWE has a learned justifier of inequality meaning with age or experience in a culture, Levy, West, et al. (2006) found that among European American children (ages 10–15 years), PWE was related positively to beliefs in social equality but with increased experience in the US (i.e., with age), PWE was associated with intolerance in older European Americans. An experimental induction of PWE lent further support to this finding (Levy, West, et al., 2006; Study 2). One way in which the justifier of inequality meaning may arise is through repeated exposure to others who use PWE to argue that disadvantaged groups and their members are to blame for their disadvantage (thus drawing on a cultural context in which prejudice is linked to attributions of personal responsibility and controllability). Indeed, US college students who were led to think about past instances of others using PWE in support of such arguments were less egalitarian (reported less support for social equality and donated less money to a homeless shelter) compared with students in a control condition (Levy, West, et al., 2006).

The justifier of inequality meaning of PWE could also emerge among adults living in individualistic, Western contexts in other ways. As another example, with age, as people's educational and career prospects are increasingly being evaluated, advantaged group members may be increasingly motivated to take credit for their own (or their group's) accomplishments, and seek ways to deny disadvantaged groups preferential treatment in education and work, and thus may be particularly likely to make or be receptive to a connection between PWE and justifying inequality and prejudice (see Levy et al., 2005). Essentially, these examples highlight an associated meaning mechanism in which PWE is linked to other beliefs within the relevant cultural context, which make it possible for PWE to have a justifier of inequality meaning in Western cultures. The notion of an associated meaning mechanism derives from the long-standing social psychological literature indicating that the same construct can be perceived differently by different people or in different contexts (e.g., Bruner, 1957; Turner & Oakes, 1997). Lewin (1951), for instance, noted that children hold a narrow view of the implications of their actions but gain a broader view with experience, which applied to PWE suggests that people in some contexts could acquire a growing understanding of PWE's implications with age and experience (e.g., Levy et al., 2005; Levy, West, et al., 2006; Ramírez et al., 2010).

Taken together, recent theorizing and findings suggest a more nuanced view of PWE's relation to intergroup attitudes, namely that culture, age, and social status (e.g., racial/ethnic group) may be key moderators of the relationship between PWE and intergroup attitudes. In this meta-analysis, we hypothesized that the country the study was conducted would moderate the association between endorsement of PWE and both types of intergroup attitudes, such that samples from Western countries (Canada, England, New Zealand, US) would show larger effect sizes (stronger positive associations with prejudice and negative attitudes toward policies) than samples that were from non-Western countries (India,

Jamaica, Singapore). Because of the theorized relevance of PWE with prejudice specifically in Western cultures, we also hypothesized that when focusing only on study samples from Western countries, the mean age of the sample would be a moderator, such that the higher the age, the larger (more positive) the effect sizes would be. Furthermore, we hypothesized that in Western countries, racial/ethnic group (one important indicator of relative social status in much past work on PWE) would be a moderator, namely that the greater the percentage of the sample that was white/European, the larger the effect sizes would be. We also examined percentage of the sample that was female as a possible moderator (given that gender is another indicator of relative status, e.g., Sidanius & Pratto, 1999), also focusing on Western samples.

We also pursued several auxiliary hypotheses. PWE has been associated with prejudice toward a wide range of stigmatized groups, and research has shown differences in the expression of prejudice depending on the perceived controllability of the particular stigma in places like US (e.g., Crandall & Martinez, 1996; Weiner, 1995). As already mentioned, past work has found a positive relationship between PWE and perceived personal responsibility and control over one's situation and behaviors (e.g., Christopher & Schlenker, 2005); therefore, we examined whether in Western samples the effect sizes would be larger for prejudice toward groups thought to have controllable stigmas (e.g., social class, weight) versus uncontrollable stigmas (e.g., race, gender).

## METHOD

Eligible studies contained correlations between a measure of PWE and a measure of prejudice or policy attitudes. There were no language or date restrictions, and both published and unpublished studies were eligible. We identified potentially eligible studies by searching the databases PsycINFO, PsycArticles, Academic Search Premiere, SocINDEX, Dissertation Abstracts Online, as well as Google Scholar up to January 2011 with all combinations of *Protestant work ethic*, *Protestant ethic*, *PWE*, *PE*, *work ethic*, or *American value*, plus *prejudice*, *stereotype*, *bias*, *discrimination*, *racism*, *sexism*, *homosexuality*, *poor*, *homeless*, *unemployed*, *HIV*, *AIDS*, *welfare*, *poverty*, or *policy*. Approximately 1450 abstracts were located, and full reports were obtained for the 58 abstracts that appeared to meet the eligibility criteria for this meta-analysis. Additionally, we scanned the reference sections of all identified articles (in addition to relevant review articles), which revealed 10 more potentially eligible articles. For studies in which insufficient information was provided to calculate an effect size, authors were contacted directly by electronic mail to request that information. Additionally, we circulated a request for published and unpublished articles relevant to the current project on several Listserves (i.e., European Association for Social Psychology and Social Psychology Network, which includes Society for Personality and Social Psychology, Society of Experimental Social Psychology, and Society for the Psychological Study of Social Issues), resulting in responses from researchers regarding eight more potential papers, two of which were already obtained. Of the 74 unique studies obtained and reviewed, 31 were used in the meta-analysis (26 published articles, 5 unpublished doctoral dissertations or other

manuscripts). Seven studies contributed to analyses for both outcomes, and six studies contributed more than one independent sample to the analyses, resulting in a total of 37 independent samples included for analyses with prejudice as the outcome, and 16 independent samples included for analyses with policy attitudes as the outcome. The remaining 43 studies were excluded because they did not actually contain data on the correlation between PWE (i.e., the lay theory or belief system as defined above, not one's own personal work ethic) and any measures of prejudice toward a particular group or attitudes about a policy aimed at helping disadvantaged groups.

The correlation coefficient ( $r$ ) was the effect size metric used. For studies that had measures of multiple targets of prejudice (e.g., measures of both racism and sexism; there were no cases like this for policy attitudes), for the main analyses, a composite score was created, averaging the correlations between PWE and attitudes toward each of the different targets of prejudice (Lipsey & Wilson, 2001). In the auxiliary analyses examining the differences in average effect sizes for different targets of prejudice, the effect size for each target of prejudice was calculated separately. In both of these cases (for the main analyses and for the auxiliary analyses with different targets of prejudice), for studies using more than one scale to measure attitudes toward one target of prejudice or policy attitude (e.g., two measures of racism), an average of the effect sizes for each scale was used for that target (Lipsey & Wilson, 2001). In the only case where an exact effect size was not reported but instead the effect was only described as nonsignificant (i.e., Glover, 1994), a conservative approach was used, and an effect size of zero was included in the composite effect size for that study (Rosenthal, 1995).

We conducted all analyses with Comprehensive Meta-Analysis (v.2; Borenstein, Hedges, Higgins, & Rothstein, 2005).

## RESULTS

Tables 1 and 2 show descriptive information for the 37 independent samples included for prejudice and the 16 for policy attitudes, respectively. Eleven of the independent samples used for the analyses of prejudice, and four of the independent samples used for the analyses of policy attitudes were from unpublished data (doctoral dissertations or other unpublished manuscripts), but all others were from articles published in peer-reviewed journals. All but eight of the samples included for the analyses of prejudice and all but four of the samples included for the analyses of policy attitudes were conducted completely in the US. The sample size of the independent samples ranged from 45 to 892. The earliest study included was published in 1972, and the most recent studies included were published in 2010. The majority of the studies used similar measures of PWE (the original or an adaptation of the Mirels and Garrett (1971) PWE scale or the Katz and Hass (1988) Protestant ethic scale, which is a shortened version of the Mirels and Garrett scale), and the internal reliabilities of the PWE scales tended to be similar across studies, with Cronbach alphas ranging from .53 to .83. Ten of the effect sizes included in the analyses for policy attitudes were for class-related policies, such as welfare

Table 1. Independent sample effect sizes and descriptive information for prejudice as outcome

Sample	Effect size ( <i>r</i> )	<i>n</i>	Year of publication	Type of publication	Country	Measure of PWE used	PWE measure Cronbach alpha	Target of outcome measure	Mean age of sample	% of sample that was women	% of sample that was white/European
Campbell, Schellenberg, & Senn	.16	106	1997	Published article	Canada	Katz & Hass 11-item	.76	Sexism & sexual prejudice	20.48	67	77
Christopher & Mull	.46	246	2006	Published article	USA	Mirels & Garrett 19-item	.78	Sexism	54.77	61	85
Cozzarelli, Wilkinson, & Tagler	.14	209	2001	Published article	USA	Mirels & Garrett 19-item	.70	Class	19.88	47	85
Crandall	.29	288	1994	Published article	USA	Katz & Hass 11-item	—	Overweight	—	45	—
Dudley & Mulvey	.20	327	2009	Published article	USA	Katz & Hass 11-item	.71	Racism & sexual prejudice	19.40	72	100
Fleming & Mohammed	.26	185	2006	Unpublished manuscript	USA	Katz & Hass 11-item	.68	Racism	21.00	65	84
Frey & Powell (Jamaica sample)	.04	164	2009	Published article	Jamaica	Adaptation of Mirels & Garrett	.53	Class	—	73	—
Frey & Powell (New Zealand sample)	.40	215	2009	Published article	New Zealand	Adaptation of Mirels & Garrett	.53	Class	—	70	—
Glover	.17	207	1994	Published article	USA	Katz & Hass 11-item	—	Racism	29.40	51	82
Hughes (Study 1, African American sample)	-.05	49	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Racism	15.63	51	0
Hughes (Study 1, European American sample)	-.11	52	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Racism	15.54	48	100
Hughes (Study 2, African American sample)	-.05	45	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Racism	15.81	62	0
Hughes (Study 2, European American sample)	.24	64	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Racism	15.50	50	100
Iyer, Koleva, Graham, Ditto, & Haidt	.20	327	2010	Unpublished online data	Mixed	Other	—	Class, racism, & sexual prejudice	36.00	43	88
Katz & Hass	.27	765	1988	Published article	USA	Katz & Hass 11-item	.76	Racism	—	—	100
Lazarus (India English sample)	.01	127	2001	Dissertation	India	Katz & Hass 11-item	.72	Sexism, sexual prejudice, & overweight	20.17	55	0
Lazarus (India Tamil sample)	.02	118	2001	Dissertation	India	Katz & Hass 11-item	.72	Sexism, sexual prejudice, & overweight	19.71	76	0
Lazarus (U.S. sample)	.33	119	2001	Dissertation	USA	Katz & Hass 11-item	.72	Sexism, sexual prejudice, & overweight	19.35	42	—
Lazarus (Singapore sample)	.01	97	2001	Dissertation	Singapore	Katz & Hass 11-item	.72	Sexism, sexual prejudice, & overweight	22.25	61	0
Levy, Freitas, & Salovey	.31	139	2002	Published article	USA	Katz & Hass 11-item	.70	Homeless & HIV-positive	19.06	52	—

(Continues)

Table 1. (Continued)

Sample	Effect size ( <i>r</i> )	<i>n</i>	Year of publication	Type of publication	Country	Measure of PWE used	PWE measure Cronbach alpha	Target of outcome measure	Mean age of sample	% of sample that was women	% of sample that was white/European
Levy, West, Ramirez, & Karafantis (9–12 year old sample)	-.16	107	2006	Published article	USA	Adaptation of Katz & Hass	.79	Racism	10.48	56	100
Levy, West, Ramirez, & Karafantis (14–16 year old sample)	-.21	134	2006	Published article	USA	Adaptation of Katz & Hass	.76	Racism	15.01	72	100
Levy, West, Ramirez, & Karafantis (College aged sample)	.22	105	2006	Published article	USA	Adaptation of Katz & Hass	.81	Racism	20.64	78	100
Littrell & Diwan	.30	62	1998a	Published article	USA	Mirels & Garrett 19-item	.83	Class	31.00	83	65
Littrell & Diwan	.46	362	1998b	Published article	USA	Mirels & Garrett 19-item	.77	Class	32.60	45	51
MacDonald	.49	96	1972	Published article	USA	Mirels & Garrett 19-Item	—	Class	22.30	71	—
Malcomson, Christopher, Franzen, & Keyes	.25	166	2006	Published article	USA	Mirels & Garrett 19-item	.70	Sexual prejudice	19.08	60	—
Masser & Abrams	.13	110	1999	Published article	England	Katz & Hass 11-item	—	Sexism	—	—	—
Monteith & Spicer	.17	246	2000	Published article	USA	Katz & Hass 11-item	.67	Racism	—	—	100
Patchell	.24	194	2005	Dissertation	USA	Katz & Hass 11-item	.61	Racism & addicts	19.14	51	—
Quinn & Crocker	.27	257	1999	Published article	USA	Adaptation of Katz & Hass	.79	Overweight	18.50	100	74
Reyna, Korfmacher, & Tucker (Study 1)	-.03	892	2005	Published article	USA	Other	—	Racism	45.00	57	100
Reyna, Korfmacher, & Tucker (Study 2)	-.03	184	2005	Published article	USA	Other	—	Racism	34.00	45	—
Rüsch, Todd, Bodenhausen, & Corrigan	—	—	2010	Published article	USA	Katz & Hass 11-item	.70	Mental illness	44.87	31	33
Schmader, Johns, & Barquissau	-.17	86	2004	Published article	USA	Other	.63	Sexism	—	100	79
Someran	.63	154	1993	Published article	USA	Adaptation of Mirels & Garrett 11-item	.76	Class	—	60	88
Swim, Aikin, Hall, & Hunter	.14	586	1995	Published article	USA	Katz & Hass 11-item	—	Racism & sexism	—	60	—

PWE = Protestant work ethic.

Table 2. Independent sample effect sizes and descriptive information for policy attitudes as outcome

Sample	Effect SIZE ( <i>r</i> )	<i>n</i>	Year of publication	Type of publication	Country	Measure of PWE used	PWE measure Cronbach alpha	Target of outcome measure	Mean age of sample	% of sample that was women	% of sample that was white/European
Frey & Powell (Jamaica sample)	.17	165	2009	Published article	Jamaica	Adaptation of Mirels & Garrett	.53	Class	—	73	—
Frey & Powell (New Zealand sample)	.32	224	2009	Published article	New Zealand	Adaptation of Mirels & Garrett	.53	Class	—	70	—
Hasenfeld & Rafferty	.29	550	1989	Published article	USA	Other	.64	Class	43.52	59	81
Heaven	.02	285	1990	Published article	England	Adaptation of Mirels & Garrett	—	Class	—	49	—
Hirshberg & Ford	.30	173	2001	Published article	New Zealand	Other	.75	Class	21.00	52	—
Hughes (Study 1, African American sample)	-.56	49	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Race	15.63	51	0
Hughes (Study 1, European American sample)	.11	52	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Race	15.54	48	100
Hughes (Study 2, African American sample)	.00	45	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Race	15.81	62	0
Hughes (Study 2, European American sample)	-.46	64	2008	Dissertation	USA	Adaptation of Katz & Hass	—	Race	15.50	50	100
Littrell & Diwan	.10	62	1998a	Published article	USA	Mirels & Garrett	.83	Class	31.00	83	65
Littrell & Diwan	.24	362	1998b	Published article	USA	Mirels & Garrett	.77	Class	32.60	45	51
MacDonald	.32	96	1972	Published article	USA	Mirels & Garrett	—	Class	22.30	71	—
Reyna, Korfmacher, & Tucker (Study 1)	.08	892	2005	Published article	USA	Other	—	Race	45.00	57	100
Reyna, Korfmacher, & Tucker (Study 2)	.17	184	2005	Published article	USA	Other	—	Race	34.00	45	—
Someran	.40	154	1993	Published article	USA	Adaptation of Mirels & Garrett	.76	Class	—	60	88
Williamson	.42	375	1974	Published article	USA	Other	—	Class	—	87	93

PWE = Protestant work ethic.

programming or programming to help the homeless, and six were race-related policies, such as affirmative action and desegregation. The types of prejudice examined included race-, gender-, sexual orientation-, class- (e.g., prejudice against the homeless, the poor, or those on welfare), weight-, mental illness-, drug addiction-, and HIV-related prejudice. The mean age of the independent samples ranged from 10.48 to 54.77 years, the percentage of the sample that was female ranged from 31% to 100%, and the percentage of the sample that was white/European ranged from 0% to 100%.

Effect sizes ranged from  $-.21$  to  $.63$ , with all but eight that were included in the analyses for prejudice, and all but two that were included in the analyses for policy attitudes, being positive. A random-effects model, which assumes that the study effect sizes were sampled from a distribution of effect sizes and estimates the mean of this distribution of effects, was used to calculate the value and significance of the mean aggregate effect sizes; this is deemed preferable to using a fixed-effect model, which assumes less plausibly that there is a

single common effect represented by the set of studies (Borenstein, Hedges, Higgins, & Rothstein, 2009; Schmidt, Oh, & Hayes, 2009). The mean association between PWE and prejudice was  $.19$  [95% confidence interval (CI),  $.13-.25$ ;  $p < .001$ ], indicating that as PWE increased, prejudice also increased significantly. The mean association between PWE and policy attitudes was  $.14$  (95% CI,  $.04-.24$ ,  $p = .005$ ), indicating that as PWE increased, negative attitudes toward policies aimed at helping disadvantaged members of society also increased significantly. Fail-safe  $n$  (Rosenthal, 1979) analyses to test for the impact of publication bias indicated that to nullify the overall effects found, there would need to be 2394 missing studies for prejudice, and 364 for policy attitudes, suggesting that the vulnerability of these estimates to publication bias was minimal. Funnel plots of standard error for both prejudice and policy attitudes are depicted in Figures 1 and 2, respectively. These funnel plots are visual aids to help illustrate bias through asymmetry that indicates the absence of studies, particularly smaller studies with effect sizes that contradict the overall effect size. Although the

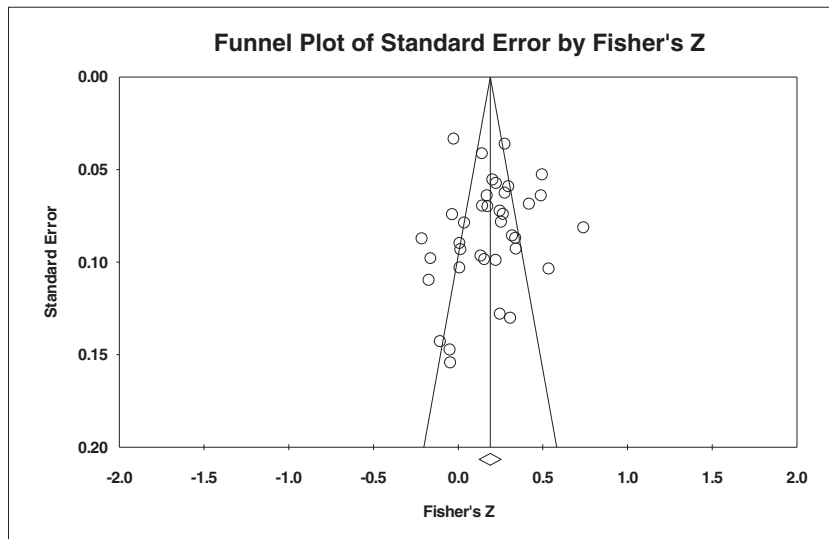


Figure 1. Funnel plot of standard error by Fisher's  $Z$  for prejudice as the outcome

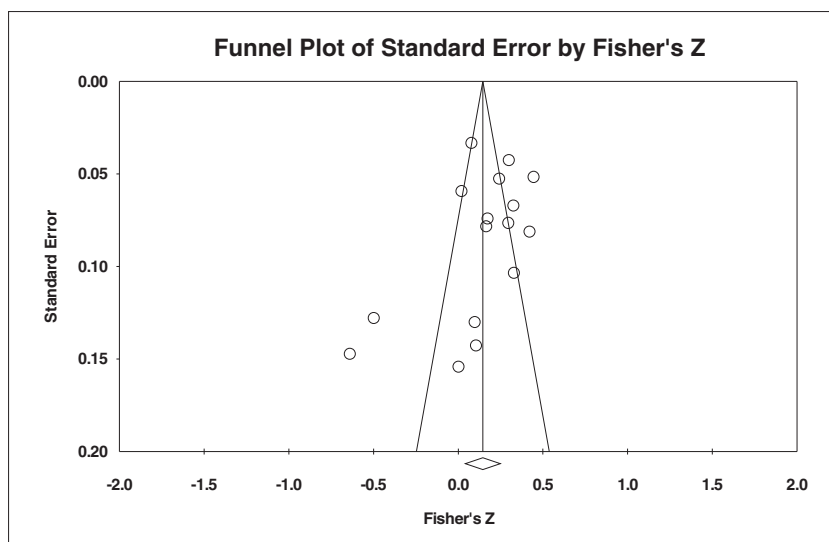


Figure 2. Funnel plot of standard error by Fisher's  $Z$  for policy attitudes as the outcome

visual impression of Figures 1 and 2 is that they are not perfectly symmetrical, this asymmetry was not significant by Egger's test,  $t = 1.05$ ,  $p = .310$ , and  $t = .20$ ,  $p = .839$ , respectively, and was in the direction opposite to what would be expected if publication bias were operating. A significant amount of heterogeneity was found among the effect sizes reflecting both the relationship of PWE with prejudice [ $Q(36) = 267.73$ ,  $p < .001$ ,  $I^2 = 86.55$ ] and the relationship of PWE with policy attitudes [ $Q(15) = 130.06$ ,  $p < .001$ ,  $I^2 = 88.47$ ], indicating that an examination of moderators was appropriate.

### Moderators of the Relationship Between Protestant Work Ethic and Prejudice

Moderator analyses were conducted using analogue-to-analysis of variance for the one categorical moderator variable (country in which the study was conducted) and meta-regression for the three continuous moderator variables (mean age of sample, percentage of the sample that was white/European, and percentage of the sample that was female), all focusing on Western samples because of the theorized relevance of PWE with prejudice in Western cultures. We compared all studies conducted in Western countries, including England, Canada, New Zealand, and the US, with studies conducted in non-Western countries, including India, Jamaica, and Singapore. For this analysis, the sample reported on in the study by Iyer, Koleva, Graham, Ditto, and Haidt (2010) was excluded because it contained data from several countries.

We ran moderator analyses using a mixed-effects model (Viechtbauer, 2005), which uses a random-effects model to estimate effects within subgroups and a fixed-effect model to estimate effects across subgroups, as is advocated by Borenstein et al. (2009). Tables 3 and 4 show the results of these analyses. The effect of the country the study was conducted in was significant, and the effect of the mean age of the sample (within Western countries only) was marginally significant. The effects of the percentage of the sample that was female and percentage of the sample that was white/European were nonsignificant.

Specifically, studies conducted in Western countries (i.e., Canada, England, New Zealand, and the US) yielded significantly larger effect sizes reflecting the relationship between endorsement of PWE and prejudice than those conducted in non-Western countries (random-effects estimates of  $r = .21$ , 95% CI, .14–.27,  $p < .001$ , and  $r = .02$ , 95% CI,  $-.07$  to .11,  $p = .657$ , respectively). Also, within Western countries, studies with younger participants tended to have smaller or even negative effect sizes, whereas studies with older participants tended to have larger effect sizes, although this effect was only marginally significant.

### Auxiliary Analysis for Target of Prejudice

To examine the effect sizes for the various targets of prejudice, we conducted a separate meta-analysis for each distinct target for which there were at least two independent samples, again focusing on Western samples. Based on composite effect sizes, it appeared that effect sizes varied depending on the target, with class-, weight-, and sexual orientation-related prejudice yielding the largest effect sizes (random-effects estimates of  $r = .42$ , 95% CI, .27–.54,  $p < .001$  for class;  $r = .27$ , 95% CI, .19–.34,  $p < .001$  for weight; and  $r = .29$ , 95% CI, .18–.38,  $p < .001$  for sexual orientation), and race- and gender-related prejudice yielding smaller effect sizes (random-effects estimates of  $r = .09$ , 95% CI, .02–.17,  $p = .018$  for race; and  $r = .18$ , 95% CI, .01–.35,  $p = .044$  for gender).

### Moderators of the Relationship Between Protestant Work Ethic and Policy Attitudes

Only one of the samples that included policy attitudes as the outcome was from a non-Western sample, so we were not able to conduct the analysis of comparing effect sizes in different cultural contexts for policy attitudes. However, because for policy attitudes, there were no samples that included measures of policy attitudes for multiple targets, we were able to form independent comparisons to statistically test whether the target of the policy attitudes was a moderator of the effect size. Thus,

Table 3. Results of moderator analyses for prejudice as outcome using a mixed-effects model

Moderator	<i>Q</i>	<i>df</i>	<i>p</i>
Country of study—"Western" versus "non-Western"	10.72	1	.001
Mean age of sample	3.14	1	.076
Percent of sample that was white/European	0.02	1	.896
Percent of sample that was female	0.33	1	.563

Table 4. Mean effect sizes for different levels of categorical moderators for analyses with prejudice as outcome (random-effects model)

	<i>n</i>	Mean effect size ( <i>r</i> )	<i>p</i>
<b>Country of Study—Western versus non-Western</b>			
Western	32	.21 (95% CI, .14–.27)	<.001
Non-Western	4	.02 (95% CI, $-.07$ to .11)	.657
<b>Target of outcome measure</b>			
Class	6	.42 (95% CI, .27–.54)	<.001
Gender	6	.18 (95% CI, .01–.35)	.044
Race	16	.09 (95% CI, .02–.17)	.018
Sexual orientation	4	.29 (95% CI, .18–.38)	<.001
Weight	3	.27 (95% CI, .19–.34)	<.001



for the mean age of the sample, the percentage of the sample that was female, the percentage of the sample that was white/European, and the target of the policy attitude, we again ran moderator analyses using a mixed-effects model (Viechtbauer, 2005), all focusing on Western samples only. Tables 5 and 6 show the results of these analyses. Similar to the result for prejudice, the effect of the age of the sample was marginally significant. The effects of the percentage of the sample that was female and percentage of the sample that was white/European were not significant. As well, target of the policy attitudes was a significant moderator of effect size.

Specifically, samples with older mean ages had marginally significantly larger effect sizes for the relationship between PWE and negative attitudes toward policies aimed at helping disadvantaged members of society. Additionally, policies aimed at helping people based on class (e.g., welfare) yielded a significantly larger mean effect size (random-effects estimates of  $r = .28$ , 95% CI, .19–.36,  $p = .001$ ) than policies aimed at helping people based on race (e.g., affirmative action), which was actually negative (random-effects estimates of  $r = -.11$ , 95% CI,  $-.32$  to  $.11$ ).

## DISCUSSION

Protestant work ethic is a prevalent belief in many cultures and has for decades been discussed as promoting negative attitudes toward disadvantaged groups and policies aimed at helping these groups (e.g., Furnham, 1982, 1985; Katz & Hass, 1988). Results from this meta-analysis including 37 independent samples for prejudice as the outcome and 16 independent samples for policy attitudes as the outcome, spanning almost 40 years of research confirm this negative implication of PWE. There is a moderate relationship between endorsement of PWE and both prejudice and policy attitudes, suggesting that the more people endorse PWE, the more negative attitudes they hold toward members of various disadvantaged groups, and the more negative attitudes they hold toward policies or programs that are aimed at helping members of those groups.

Table 5. Results of moderator analyses for policy attitudes as outcome using a mixed-effects model

Moderator	<i>Q</i>	<i>df</i>	<i>p</i>
Mean age of sample	3.50	1	.061
Percent of sample that was white/European	2.06	1	.151
Percent of sample that was female	2.97	1	.085
Target of outcome measure	10.24	1	.001

Table 6. Mean effect sizes for different targets of policy attitudes (random-effects model)

Target of outcome measure	<i>n</i>	Mean effect size ( <i>r</i> )	<i>p</i>
Class	9	.28 (95% CI, .19–.36)	< .001
Race	6	-.11 (95% CI, $-.32$ to $.11$ )	.330

Nonetheless, results also reveal that PWE does not reliably promote prejudice among all people, in all environments, or for all types of prejudice. Consistent with newer theorizing and research suggesting that PWE's meaning may vary by context (e.g., Crandall & Martinez, 1996; Levy et al., 2010; Levy et al., 2005; Ramírez et al., 2010), we found that in Western samples there was a significantly stronger positive relationship between PWE and prejudice and policy attitudes than in other countries. This is likely because in Western countries, such as Canada, England, New Zealand, and the US, PWE is linked to cultural values emphasizing individualism and personal responsibility, with "blame the victim" implications, and thus is associated with prejudice and not wanting to help disadvantaged members of society, whereas PWE does not necessarily have these implications in other cultures (e.g., Crandall & Martinez, 1996; Ramírez et al., 2010). There are other possible explanations for the results, such as there being cultural differences in responses to measures of PWE. For example, if there were differences in level of internal reliability by country, this could affect the size of correlations between PWE and measures of prejudice. Because of the similar Cronbach alphas seen for measures of PWE across countries, this is not likely driving the differences we found, but future work may want to explore possible differences in reliability, factor structure, or means and variances of measures of PWE in different countries and cultures (as well as among subgroups within cultures, such as different age groups).

Additionally, the mean age of the study sample within Western countries was a marginally significant moderator of effect sizes for both prejudice and policy attitudes, with the trend that the older the sample of the study, the stronger the relationship between PWE and prejudice or negative attitudes toward policies aimed at helping disadvantaged groups. Although these effects were only marginally significant, they partially support the developmental theorizing and findings (e.g., Levy et al., 2005; Levy, West, et al., 2006; Ramírez et al., 2010), which suggests that adults in Western societies are likely to be more familiar with the intolerance meaning of PWE, or that PWE takes on a culturally relevant justifier of inequality meaning over time, but children (people less familiar with the culture or environment) may be more likely to see PWE through its social equalizer meaning. Yet, it is also possible that the moderating effect of age could be confounded by a cohort effect. Also, many studies did not report mean age of the sample, so these analyses were somewhat limited.

Additionally, in Western countries, PWE appeared to have particularly strong relationships with class-, weight-, and sexual orientation-based prejudice and have relatively weaker relationships with race- and gender-based prejudice. PWE also had a stronger relationship with class-based policy attitudes than race-based policy attitudes. For the analyses with prejudice, to include all possible assessments of different forms of prejudice, we conducted separate analyses for each target of prejudice, thereby allowing us to include multiple targets of prejudice included in one sample. The drawback to this strategy is that, because of non-independence, we could not directly test whether the target of prejudice was a significant moderator of effect size. However, this strategy (as opposed to choosing one target of prejudice for each study) did lead to there being more samples available to include for

each target of prejudice, probably giving more reliable estimates of mean effect sizes for each target of prejudice. The findings for policy attitudes also corroborated these findings, and although there were only two targets for policy attitudes, for this analysis, we were able to directly test for moderation, which was significant. These findings, suggesting that PWE's relationship with intergroup attitudes depend on the target of those attitudes, are probably because of the perceived controllability of the stigma, with the relationship between PWE and prejudice being stronger for groups thought to have controllable stigmas (e.g., social class, weight) than uncontrollable stigmas (e.g., race, gender). Still, there were very few studies including measures of weight-based prejudice; thus, conclusions about this target of prejudice are only preliminary. As well, some other forms of prejudice only contained single samples and therefore were not able to be included, such as prejudice against those with mental illness and those addicted to drugs.

Contrary to hypotheses, percentage of the sample that was white/European was not a significant moderator for the relationships between PWE and prejudice or policy attitudes. It could be that testing the percentage of the sample that was white/European, as opposed to directly testing differences in the association with samples that are all white/European versus samples that are all from one other racial/ethnic group, is not a sensitive enough test of the moderating effect of racial/ethnic group status, and the same issue may apply for the analyses with percentage of the sample that was female. For example, past studies directly comparing PWE beliefs and its impact among racial and ethnic groups have found racial and ethnic differences in endorsement (e.g., see Levy et al., 2010; Ramírez et al., 2010).

### Limitations and Future Directions

Consistent with all meta-analyses, this meta-analysis is limited by the availability of relevant studies. Although we included both published journal articles and unpublished manuscripts, there are likely studies with null results that were not available, which could lead to an overestimation of the overall effect sizes of the relationships due to publication bias (e.g., Lipsey & Wilson, 2001). Also, our analyses were limited by the features of the available studies (e.g., relatively limited number of studies for examining policy attitudes, country of origin, age effects, racial/ethnic effects).

For example, few studies were actually conducted in non-Western countries. Therefore, although the moderation analyses clearly supported the hypothesis that PWE is more likely to be associated with more negative intergroup attitudes in Western countries, this comparison was limited. The implications of PWE for intergroup attitudes should be explored in more non-Western countries to better understand the culture-bound meanings of PWE. Additionally, the Western countries in which studies of PWE have been conducted are limited, which makes it unclear if the justifier of inequality meaning of PWE is represented in all Western societies, or only certain ones, such as the US and England (in which the majority of studies were conducted).

Despite these limitations, consistent with some of the main goals of meta-analysis as a technique, even the limitations of this study itself can greatly inform what future directions should be taken in the field, and guide future studies in making a stronger contribution to a fuller understanding of

PWE's relationship with intergroup attitudes. The findings from this meta-analysis do support emerging theory in the field that PWE may not be a belief with a singular meaning or implication for intergroup attitudes and relations for all people in all contexts. Our findings support a nuanced view of the implications of PWE, with particular attention to different culture- and context-bound meanings of PWE, suggesting that endorsement of PWE is not always associated with greater prejudice. These findings along with recent theorizing and work suggest the need to continue to pursue a more complex theoretical model of PWE for intergroup attitudes and relations. PWE appears to be a more flexible belief than once thought, suggesting that the origins, nature, and functions of PWE need to be reconsidered. Future work should pay more attention to potential moderating variables such as age as well as race, ethnicity, and gender by seeking more diverse samples in terms of age group, country, and racial/ethnic background, allowing for direct tests of these variables and contributing to a greater understanding of this more nuanced view of PWE.

As well, these findings suggest that greater focus is needed on the social contexts in which people learn and use intolerant or other meanings of PWE, including the media and other influences through which different meanings are communicated. Although there is evidence that PWE can serve people's needs to justify their prejudice, particularly in Western cultures, research should test different functions of PWE, such as maintaining personal motivation, a sense of control, interpersonal relationships, and social values (Levy, Chiu, & Hong, 2006). Although these findings support that PWE's justifier of prejudice or intolerant meaning may be a learned meaning in particular cultural contexts, it is not yet understood where and how this meaning is learned or incorporated, and if the meaning of PWE that is learned can be altered even in Western contexts, to avoid its intolerant meaning and negative effect on attitudes and policies relevant to disadvantaged groups and their members.

In this future work, there is also a need for greater focus on the relationship between PWE and attitudes toward current policy debates related to intergroup relations, inequality, and helping disadvantaged groups. Despite initial work on PWE's relationship to policy attitudes (e.g., MacDonald, 1972; Williamson, 1974), little work over the past 30 years has focused on this relationship. Past findings suggest that PWE would be associated with intolerant attitudes toward any policies aimed at helping disadvantaged groups or promoting equality, such as more liberal immigration policies, legalization of gay marriage, or universal health care programs, but these relationships may vary based on the perceived controllability of the disadvantage experienced by the target group of those policies; however, PWE's implications for these different types of policies have not yet been tested and may also help to develop a fuller understanding of the culture- and context-bound meanings of PWE.

### CONCLUSION

Protestant work ethic has a long history as a contributing factor to negative attitudes toward disadvantaged groups and policies aimed at helping those groups. Findings from this meta-analysis not only corroborate this negative aspect of

PWE but also reveal, consistent with more recent theorizing and research, that PWE does not have a singular meaning. The implications of PWE are not always clearly negative and are moderated by culture and context.

This trend toward a more nuanced view of PWE fits with a more general trend in the intergroup relations literature to identify potential multiple—and even conflicting—intergroup meanings and consequences of prevalent lay theories (e.g., see Levy, Chiu, et al., 2006; Verkuyten, 2003). For instance, theories about the genetic basis of groups, including essentialism, have been found to on the one hand be related to greater prejudice toward African Americans and on the other hand be related to lower prejudice against homosexuals (e.g., Haslam & Levy, 2006; Jayaratne et al., 2006). Thus, findings from this meta-analysis can guide future research toward a more fine-grained analysis of the origins, functions, and nature of PWE across cultures, contexts, and groups, while contributing to theorizing about lay theories more generally.

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