Nations' income inequality predicts ambivalence in stereotype content: How societies mind the gap

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Income inequality undermines societies: The more inequality, the more health problems, social tensions, and the lower social mobility, trust, life expectancy. Given people's tendency to legitimate existing social arrangements, the stereotype content model (SCM) argues that ambivalence—perceiving many groups as either warm or competent, but not both—may help maintain socio-economic disparities. The association between stereotype ambivalence and income inequality in 37 cross-national samples from Europe, the Americas, Oceania, Asia, and Africa investigates how groups' overall warmth-competence, status-competence, and competition-warmth correlations vary across societies, and whether these variations associate with income inequality (Gini index). More unequal societies report more ambivalent stereotypes, whereas more equal ones dislike competitive groups and do not necessarily respect them as competent. Unequal societies may need ambivalence for system stability: Income inequality compensates groups with partially positive social images.

Inequality corrodes human relations. As Alexis de Tocqueville (1835/2003) noted, material differences divide people socially, and obstruct empathy, favouring exploitation and slavery. Coming from aristocratic France, in 1831, de Tocqueville travelled the United States, impressed by the 'equality of conditions' (p. 11), which, in his opinion, helped Americans to trust each other. Indeed, for thousands of years the quality of human life has improved by raising material living standards, but nowadays for rich countries to get richer adds nothing to quality of life (Wilkinson & Pickett, 2010). What instead seems to matter the most in developed nations is the level of inequality in society, namely, the size of income disparities.

Many problems plague more unequal societies: The more inequality, the more health problems, social tensions, and the lower life expectancy, social mobility, education, trust, happiness, and well-being (see Wilkinson & Pickett, 2009, for a review). If on the one hand, both history and recent events (e.g., the Arab spring, the Occupy movement) argue in favour of people's need for justice and therefore for fighting against inequality, on the other hand, both history and recent events (e.g., the economic crisis) show the existence

of a perplexing degree of acquiescence that contributes to the maintenance of unequal systems. Certainly, collective actions have played a critical role in reducing inequality. However, when considering the level of persistent disparity within and between societies, the relative lack of collective actions may seem surprising.

The American historian Howard Zinn (1968) claimed that 'society's tendency is to maintain what has been' and 'rebellion is only an occasional reaction' (p. 16; cited in Jost, Banaji, & Nosek, 2004). Social psychologists Jost and Banaji (1994) offer an explanation for such a tendency by arguing that individuals are inclined to rationalize the status quo, thus perceiving the existing social arrangements that affect them as fair, legitimate, and justified. The stereotype content model (SCM; Fiske, Cuddy, Glick, & Xu, 2002) suggests that depicting societal groups in ambivalent ways—such as fortunate in one sphere while unfortunate in another—may mask socio-economic disparities, facilitating, as a consequence, the rationalization and maintenance of the status quo. Using the SCM, the present work begins to investigate the relationship between ambivalent societal stereotypes and income inequality across nations, hypothesizing that the more unequal a society is the more ambivalence appears as a rational buffer that helps to conceal inequality and maintain the system.

Ambivalence and the SCM

Among the functions of stereotypes, Tajfel (1981) argued that stereotypes contribute to the maintenance of the system 'explaining or justifying a variety of social actions' (p. 146). More recently, ambivalent stereotypes especially appear to serve this function because they paint both advantaged and disadvantaged groups as possessing distinctive but counterbalanced strengths and weaknesses, as if every 'class gets its share' (Lane, 1959, p. 39), leading people to perceive society as fair (Glick & Fiske, 2001; Kay & Jost, 2003).

Underlying ambivalent stereotypes, favourable and unfavourable biases co-exist, beyond outgroup antipathy (e.g., Eagly & Kite, 1987; Eagly & Mladinic, 1989; Glick & Fiske, 1996, 2001, 2011; Katz & Hass, 1988). In this context, the SCM (Fiske *et al.*, 2002) innovates by looking at various stereotypes simultaneously and from society's perspective, as shared, cultural, public images. Not only are many societal stereotypes ambivalent, combining both hostile and favourable beliefs about a group, but also warmth and competence (W-C) are the two basic dimensions capturing cultural contents. Although labels differ (socially vs. intellectually good–bad, Rosenberg, Nelson, & Vivekananthan, 1968; communion vs. agency, Bakan, 1966; see also Abele & Wojciszke, 2007), W-C repeatedly appear as basic dimensions of social judgment (see Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007) and intergroup behaviour (Cuddy, Fiske, & Glick, 2007) because they help individuals' social interactions, indicating how helpful or harmful a target may be (Fiske *et al.*, 2002).

Ambivalent combinations of competence and warmth also emerge in compensation-hypothesis studies (Judd, James-Hawkins, Yzerbyt, & Kashima, 2005), revealing trade-offs of competence and warmth when people rate individuals or groups in a comparative context. A compensatory process occurs when a positive perception on one dimension is offset by a negative perception on the other: Participants tried to 'rectify this disparity [on one dimension] by asserting that the situation must be reversed on the other dimension of social judgment' (Judd *et al.*, 2005, p. 910), but only on competence and warmth (see Kervyn, Yzerbyt, & Judd, 2010, for a review).

According to the SCM, competence and warmth judgments, respectively, stem from perceived socio-economic status (high–low) and perceived interdependence

(cooperative–competitive). These socio-structural factors predict groups' location on the competence-warmth stereotype map (Fiske, 2012; Fiske *et al.*, 2002, 2007). Crossing status and interdependence, four kinds of stereotype content emerge: High-status, cooperative groups seem both competent and warm, a univalent and positive stereotype; low-status, competitive groups receive univalent but negative stereotypes, seeming both cold and incompetent. High-status, competitive groups are ambivalently judged as competent, but not warm; whereas low-status, cooperative groups are ambivalently considered as warm, but incompetent.

Stereotype content model hypotheses – perceived competence and warmth differentiate groups' stereotypes, many ambivalent (or mixed), with status predicting competence, and competition predicting (low) warmth – have extensive support, using a wide range of target groups: Occupations, nationalities, ethnicities, socio-economic groups, religions, and gender subtypes (see Cuddy *et al.*, 2008; for a review). Most relevant here, Cuddy *et al.* (2009) tested SCM hypotheses using eight European (mostly individualistic) and three East Asian (collectivistic) samples, finding cross-cultural similarities on the main SCM hypotheses, with cross-cultural differences (more modest, collectivistic cultures do not locate reference groups in the high–high cell). SCM provides a pancultural tool for predicting group stereotypes from structural relations with other groups in society, and for comparing across societies.

As noted, individuals are inclined to maintain the status quo rather than to subvert it and this might be particularly true for high-status people (e.g., Schmitt, Branscombe, & Kappen, 2003). However, favourable attitudes towards the preservation of the social order, albeit unjust, are also shared, at least under certain conditions, by disadvantaged groups (Jost *et al.*, 2004; Kay *et al.*, 2009; Lane, 1959; Stott & Drury, 2004; Tajfel, 1981). Holding ambivalent beliefs about social categories may help people (especially the more deprived) to tolerate their situation (e.g., Jackman, 1994) because when one's group is low on one dimension, it is rewarded on the other. For this reason, ambivalent stereotypes can legitimate the status quo in ways that purely hostile stereotypes cannot (Fiske *et al.*, 2002). Because people are more likely to endorse collective actions only when injustice is relatively clear (see Ellemers & Barreto, 2009), these subtle, ambivalent forms of prejudice may discourage people from challenging unequal systems. Becker and Wright (2011) have indeed recently shown that exposure to benevolent sexism (Glick & Fiske, 1996, 2011), a paternalistic belief that portrays women as 'wonderful but incompetent', hence best suited for low-status positions, decreases women's engagement in collective action, while exposure to hostile sexism increases it (both effects were mediated by system justification motives).

Ambivalent gender stereotypes are in fact more prevalent in countries with higher gender inequality at a societal level (Brandt, 2011; Glick *et al.*, 2000, 2004). Furthermore, social problems more reliably associate with income distribution 'when income differences are measured across nation-states and other large geo-political units' (Wilkinson & Pickett, 2007, p. 1966). Hence, to explore the ambivalence-inequality association, our cross-national study used SCM theory and method to investigate the ambivalent warmth–competence relationship and its relationship with an income-inequality measure, namely, the Gini index (Brandolini & Smeeding, 2007).

Hypotheses

To establish comparability with earlier efforts, we first tested the four SCM hypotheses, namely, how social groups were rated in warmth, competence, status, and competition,

expecting that: Societal groups would array on perceived W-C (Hypothesis 1); many groups would appear either more competent or more warm (but not necessarily both or neither; Hypothesis 2); perceived status would positively correlate with competence (Hypothesis 3), and competition negatively with warmth (Hypothesis 4).

The inequality hypotheses investigated first overall correlations between W-C, and whether these co-varied with Gini inequality coefficients. The Gini index measures the degree of inequality in the distribution of income within a society. As calculated by the American Central Intelligence Agency, the cumulative family income is plotted against the number of families arranged from the poorest to the richest. Low Gini coefficients indicate a more equal distribution, with 0 corresponding to complete equality, and 100 corresponding to complete inequality.[1]

We considered a society as more ambivalent when the overall W-C correlation, calculated across societal groups within each sample, was around zero: The less correlated the W-C dimensions, the more the society's groups appear as a cloud of points, rather than a vector, as they would under a high warmth-competence correlation. The more circular cloud reflects the distribution of many groups into the ambivalent quadrants of the space; the vector shape would show most groups being univalent, low–low or high–high. Thus, we expected higher inequality (Gini) to be associated with lower W-C correlation coefficients (Hypothesis 5). This would fit greater inequality requiring more compensation.

The inequality focus also compared how stereotypic traits and their respective socio-structural predictors (status-competence, competition-warmth) vary across societies. Perhaps viewing some groups ambivalently helps mask the status-competence dimension as the main source of social difference, emphasizing the competition-(low)warmth dimension as an additional source of social difference. A group might appear low status and low competence, but compensated by stereotypically appearing cooperative and friendly. This mechanism, that inequality could be masked by emphasizing another dimension besides status-competence, suggests the hypothesis that correlations between inequality (Gini) and ambivalence (the warmth-competence correlation) will themselves be linked to variations in the competition-warmth correlation: In other words, the inequality-ambivalence association will depend on the way in which competitive groups are perceived in terms of warmth (Hypothesis 6).

Alternatively, correlations between inequality and ambivalence could result from compressing or exaggerating perceived status differences (vs. actual differences measured by the Gini). If societies tend to conceal inequality, then the competence attributed to high-status groups could be either minimized or alternatively inflated. Therefore, the inequality-ambivalence correlation would itself correlate with the status-competence correlation, showing either compression, as when people endorse egalitarian principles (negative correlation), or exaggeration, as when people endorse meritocracy (positive correlation; Hypothesis 7).

Method

Data were collected in: Australia, Belgium, Bolivia, Canada, Chile, Costa Rica, England, Greece, India, Israel, Italy, Malaysia, Mexico, Northern Ireland, New Zealand, Peru,

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[1] Gini coefficients were retrieved from Central Intelligence Agency-The World Factbook, https://www.cia.gov/library/publications/the-world-factbook/fields/2172.html July, 2011.

Portugal, South Africa, Spain, Switzerland, and Uganda. Data from South Korea, Japan, Hong Kong, and United States (US) were retrieved from previous studies (Cuddy *et al.*, 2009; Fiske *et al.*, 2002, Study 1) and reanalysed here.

Preliminary groups-listing study

Following Fiske *et al.* (2002) and Cuddy *et al.* (2009), in each country[2] a preliminary study identified societal groups considered most salient. In their respective native languages, approximately 1,379 participants, mostly students, 55.14% female, sample sizes between 28 and 100, averaging 25.07 years, voluntarily completed a self-administered, open-ended questionnaire listing: What various types of people their society categorizes into groups; which groups were considered to be of very low status; and of which groups they consider themselves to be member.

These questions aimed to identify relevant social groups in the least constrained way, insuring that all types of groups would be mentioned. Groups listed by at least 15% of participants then appeared in that country's main survey questionnaire. Across samples, the number of distinct groups ranged between 14 (Chile) and 33 (Bolivia, UPB-CB; Table SI.1 in the online supporting information presents demographic information for each sample). Overall, 235 different societal groups were listed, many of which were context specific (i.e., 140 social categories were mentioned only in one preliminary study). Given present purposes, we checked for the possibility that specific target groups would be chosen only in more equal versus unequal countries. We considered the societal groups listed in at least 10 of 29[2] preliminary studies (i.e., 19 societal groups: Blacks, Catholic people, children, Christians, disabled people, gays, immigrants, Jews, men, middle-class, Muslims, old people, poor people, rich people, students, unemployed people, women, working class, young people). For each target group, we took into consideration the Gini coefficients of the countries in which it was listed, and then calculated the median, thus obtaining 19 Gini medians. They ranged from 33.70 to 39.20, just on either side of the overall median Gini (37.60) of the countries in which the 29 preliminary studies were carried out. Results showed that all these groups were mentioned about equally in both high versus low equal countries.

Main survey

Samples and participants

Thirty-seven samples were recruited, one from each of the countries mentioned, with the exceptions of: Australia (two samples, Asian- and European-Australians), Bolivia (four different Bolivian universities' campuses[2]), Israel (two samples, Israeli-Jews and -Arabs), Italy (two samples, students and non-students), New Zealand (two samples, European- and Maori-New Zealanders), Northern Ireland (two samples, Catholic and Protestant Irish), Switzerland (four samples, Swiss-German students, Swiss-Italian students, Swiss-French students, and Swiss-French non-students), United States (two samples, students and non-students).

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[2] *In Switzerland, three preliminary studies (one in each canton), and in Israel two preliminary studies (one for Israeli-Jews and one for Israeli-Arabs) were carried out. In Bolivia, data for the long survey were collected in four universities' campuses located in two Bolivian cities. In Cochabamba, both the preliminary groups-listing study and the long survey were conducted at the Universidad Privada Boliviana-Cochabamba (UPB-CB). In La Paz, the preliminary groups-listing study was at the Universidad Mayor de San Andres (UMSA), whereas the long survey was at the UMSA, Universidad Catolica Boliviana (UCB), and Universidad Privada Boliviana (UPB).*

Respondents (N = 3,229) voluntarily participated in the main survey. Sample sizes varied (n = 30–272), mostly students, 61.04% female, mean age 23.7 years (Table SI.2 in the online supporting information presents demographic information for each sample).

Questionnaire and procedure

In their native languages, participants rated the groups from their countries' respective preliminary studies on items reflecting warmth, competence, status, and competition.[3] Two items measured each construct (Appendix SI.A online presents all items) on 5-point scales (1 = *not at all* to 5 = *extremely*). As in previous SCM studies, participants rated how the groups are viewed at a cultural level: 'We intend to investigate the way societal groups are viewed by the […] society. Thus, we are not interested in your personal beliefs, but in how you think they are viewed by others'. This instruction aimed to reduce social desirability concerns and to detect socially shared group stereotypes, in effect collective lay theories about how groups interrelate.

Results

Reliabilities, for each construct, within each sample, were generally sufficient: Competence α = .64–.93 (median = 0.85); warmth α = .54–.93 (median = 0.75); status α = .60–.95 (median = 0.86); and competition α = .56–.95 (median = 0.71).[4]

SCM hypotheses

As in previous SCM studies, to test whether groups' stereotypes fell along the two primary dimensions, competence and warmth scores for each societal group were averaged across participants within each sample. These means indeed arrayed groups in a two-dimensional Competence × Warmth space (Hypothesis 1). Two types of cluster analysis examined its structure: Hierarchical cluster analysis (Ward's, 1963, method, which minimizes within-cluster variance and maximizes between-cluster variance) helped determine the best-fitting number of clusters; then, *k*-means cluster analyses examined which groups fit into which cluster. For 25 of 37 samples (67%), agglomeration statistics from the hierarchical cluster analysis pointed to a four-cluster solution. Five clusters were, instead, the best fit for the 12 remaining samples – Asian- and White-Australian, Canadian, English, Greek, Indian, European- and Maori-New Zealand, Malaysian, Japanese, Spanish, and Ugandan samples.

To test for ambivalent stereotypes (Hypothesis 2), in each sample, competence and warmth means were compared within (paired *t*-test) and between (independent *t*-test) clusters. To be identified as ambivalent (either high-competence/low-warmth [HC-LW] or low-competence/high-warmth [LC-HW]), a cluster had to meet two conditions established previously (Cuddy *et al.*, 2009; Fiske *et al.*, 2002): W-C means differed significantly; a cluster's mean for the high dimension was higher than a cluster low on that dimension, and its mean for the low dimension was lower than a cluster high on that dimension. As expected, the majority of groups ended up in ambivalent clusters in 20 of 37 samples.

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[3] *Status and competition ratings are not available for the Mexican sample.*
[4] *Reported alpha medians include the following unsatisfactory alphas: Warmth, Indian sample (α = .49); Status, Israeli-Arab sample (α = .44); Competition, Swiss-German sample (α = .30), and the four Bolivian samples (UPB α = .26; UPB-CB α = .39; UMSA α = .43; UCB α = .48).*

Three exceptions (Portugal and Northern Ireland – Catholic sample) were all univalent or all ambivalent (Japan). Two samples showed an almost equivalent numbers of groups contained in univalent versus ambivalent clusters (Indian, 17 vs. 16 groups, and Swiss German, 13 vs. 14 groups, respectively), whereas the remaining 12 samples showed more groups gathered in univalent than ambivalent clusters (Appendix SI.B online presents cluster analysis results for each sample).

Although in each country participants evaluated their own societal groups, some groups present in most societies, such as immigrants (labelled also as illegal immigrants or migrant workers), and unemployed people consistently ended up in the low-competence/low-warmth (LC-LW) cluster across cultures. We could furthermore notice some regional idiosyncrasies: For instance, in the European samples, the group Gypsies is included in the LC-LW cluster, whereas in the South American samples we found the group illiterates in that quadrant. The high-competence/high-warmth cluster, instead, comprised the ingroups and the reference groups, which vary from society to society. The LC-HW cluster consistently included old people, children, and disabled people, as the HC-LW consistently included rich people.

To test SCM structure-trait predictions (Hypotheses 3 and 4), status and competition scores for each societal group were averaged across participants within each sample, and their means correlated with competence and warmth means, respectively. As expected, perceived status positively correlated with competence (rs = .74–.99, all ps < .001; average r = .90). Perceived competition-warmth correlations averaged r = −.32: Ranging from r = −.42 to −.92, ps < .05, in 15 of 36 samples[3]; three samples were marginal, ps < .07: r = −.37, −.35, and −.36. Unexpectedly, perceived competition correlated positively with warmth in the Israeli-Arab sample (r = .45, p < .05). The remaining competition-warmth correlations were non-significant, but 11 were in the predicted negative direction whereas 6 were not (see Table 1). As in previous data sets using these methods, the average status-competence correlation showed twice the effect size of the average (negative) competition-warmth correlation.

Overall, Hypotheses 1–4 were supported in all our samples. Because each society rated its own social categories, these results suggest that evaluating different target groups does not affect the SCM basic tenets.

Ambivalence and inequality hypotheses

The distribution of target groups, within each sample, in the Competence × Warmth space suggested degrees of ambivalence: Higher degrees in some samples (a circular cloud of points, showing a zero warmth-competence correlation; e.g., Figure 1), lower degrees in others (a vector, from bottom left to top right, showing a positive warmth-competence correlation; e.g., Figure 2). Thus, W-C relate to each other in different ways, in different societies. As said, to measure different patterns across nations, we considered the overall W-C correlation within each sample as an index of ambivalence: The lower the W-C correlation, the greater the ambivalence; the higher a positive W-C correlation, the lower the ambivalence.

Warmth and competence correlations were calculated at the target-group level within each sample. As Table 1 illustrates, correlations ranged between −.19 (*ns*) and .91 (p < .001), average r = .40. Of 37 samples, 16 showed a small, non-significant W-C correlation, that is, a higher degree of ambivalence according to our definition. Because the number of groups evaluated by participants in each sample varied (i.e., from 14 to 33), we also considered R^2 as an estimate of W-C correlations' effect size. The R^2 of the

Table 1. Stereotypic traits correlations, social-structure stereotype correlations, Gini coefficients, all samples

Sample	Warmth-competence r	Status-competence r	Competition-warmth r	Competition-competence r	Status-warmth r	Gini
Mexico	−.19	Unavailable	Unavailable	Unavailable	Unavailable	48.2
US (non-student)	−.09	.97***	−.53**	.55**	−.10	45.0
South Korea	−.07	.91***	−.42*	.83***	−.30	31.4
Canada	−.03	.91***	−.56**	.19	−.18	32.1
US (student)	−.03	.98***	−.67***	.33	.01	45.0
Peru	−.01	.97***	−.10	.97***	.10	49.6
Japan	.03	.88***	−.39	.06	.03	37.6
Israel (Jews)	.08	.99***	−.59**	.48*	.07	39.2
South Africa	.11	.78***	−.18	.19	−.25	65.0
Hong Kong	.12	.99***	−.37†	.26	.12	53.3
Italy (student)	.23	.79***	−.70***	.15	−.14	32.0
Chile	.24	.97***	−.14	.75**	.11	52.4
Bolivia (UMSA)	.26	.90***	.03	.76***	.02	58.2
Switzerland (German)	.28	.93***	−.67***	−.10	.03	33.7
Italy (non-student)	.31	.75***	−.68***	.14	−.10	32.0
Costa Rica	.36	.89***	−.36††	.66***	.05	48.0
Bolivia (UCB)	.39*	.94***	−.17	.48**	.25	58.2
Bolivia (UPB)	.41*	.94***	−.11	.49**	.36	58.2
England	.46*	.93***	−.53**	−.35†	.48**	34.0
Belgium	.48*	.95***	−.92***	−.45†	.65**	28.0
New Zealand (Maori)	.48**	.96***	−.02	.40*	.42*	36.2
New Zealand (European)	.51**	.91***	−.30	.27	.34	36.2
Bolivia (UPB-CB)	.54**	.91***	.25	.64***	.42*	58.2
Australia (European)	.56**	.94***	−.73***	−.34	.45*	30.5
Uganda	.57**	.92***	.41	.89***	.40	45.7
Spain	.60**	.92***	−.35††	.09	.53**	32.0
Greece	.61**	.81***	−.14	.51**	.37	33.0
Portugal	.61**	.74***	−.67**	−.21	.31	38.5
Australia (Asian)	.65***	.95***	.01	.45*	.63***	30.5
Switzerland (French student)	.65**	.87***	−.80***	−.48*	.34	33.7
India	.72***	.87***	.01	.51**	.53***	36.8
Malaysia	.74***	.93***	.04	.49**	.69***	44.1
Switzerland (Italian)	.76***	.76***	−.18	.00	.39*	33.7
Northern Ireland (Catholic)	.77***	.95***	−.69***	−.33	.70***	34.0
Switzerland (French non-student)	.80***	.84***	−.66***	−.40†	.46*	33.7
Israel (Arabs)	.81***	.80***	.45*	.66***	.60**	39.2
Northern Ireland (Protestant)	.91***	.92***	−.25	−.07	.78***	34.0

Note. Data are reported according to the warmth and competence correlations: Ascending order.
*$p \leq$ .05; **$p \leq$ .01; ***$p \leq$ .001; $^{\dagger}p$ between .052 and .058; $^{\dagger\dagger}p = .07$.
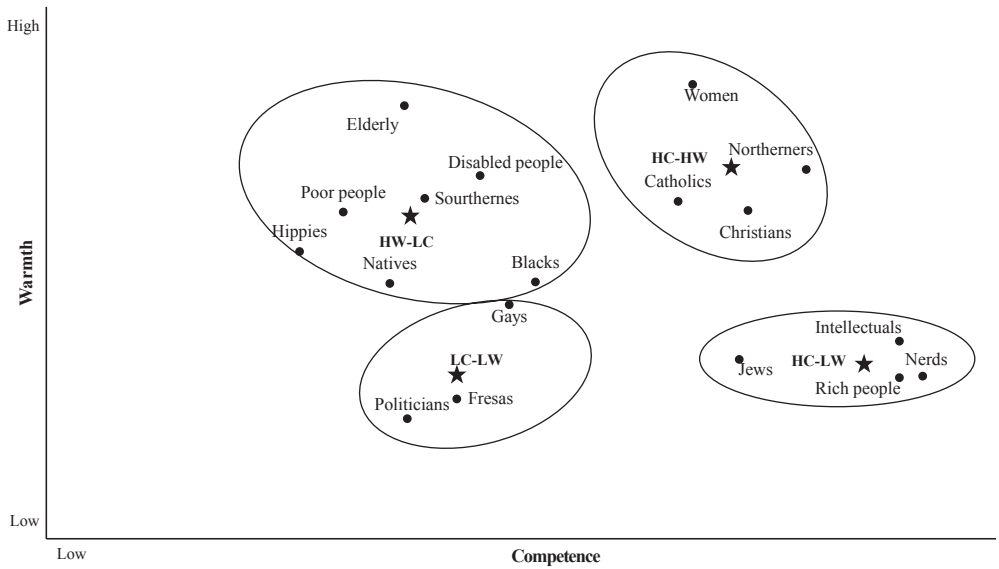
Figure 1. Mexican sample, four-cluster solution. Stars indicate cluster centres. H and L, respectively, indicate high and low; W, warmth; C, competence. The term 'fresas' refers to rich, spoiled kids.
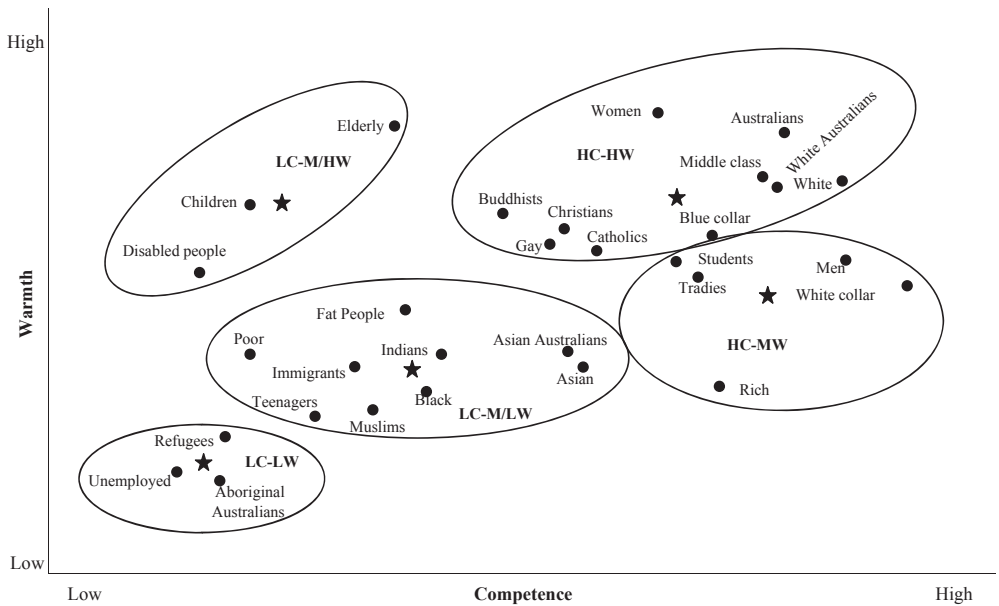

Figure 2. European Australian sample, five-cluster solution. Stars indicate cluster centres. H, M, and L, respectively, indicate high, medium, and low; W, warmth; C, competence.

aforementioned 16 coefficients were also small, ranging from .0002 to .1283. The remaining 21 W-C correlation coefficients were positive and significant, ranging from $r = .39$ to .91 (all ps < .05; R^2 from .15 to .83), that is, a lower degree of ambivalence. As expected, the percentage of target groups gathered in ambivalent clusters was

significantly higher in samples with small, non-significant W-C correlations (on average, 60.82%) than in samples with positive, significant ones (on average, 44.72%), $t(35) = 2.03$, $p = .05$. Further correlations compared the percentages of HC-LW and LC-HW groups in each sample with the W-C correlations. The W-C coefficients significantly correlated with percentages of LC-HW groups, $r = -.48$, $p < .01$, but did not with percentages of HC-LW groups, $r = .09$, $p = .58$, suggesting that our ambivalence index was mostly driven by the LC-HW combinations.

Next, Fisher's z-transformation normalized the distribution of W-C coefficients, allowing us to correlate the standardized coefficients with the Gini ones. A significant correlation, $r = -.34$, $p < .05$, indicated that more ambivalent societies are also generally more unequal, supporting Hypothesis 5 (see Figure 3). Inequality emphasizes more than one dimension of intergroup perception (not just unequal status-competence but also differentiated competition-warmth) to compensate.[5]

The robustness of the inequality-ambivalence association was tested in several ways. First, in a regression analysis, Gini coefficients (centred around the mean), the number of groups rated by each sample (centred around the mean), and their interaction were regressed onto W-C correlations (Fisher standardized) to rule out the possibility that the number of target groups evaluated in each sample had an impact on the W-C correlation's size and, therefore, on the inequality-ambivalence association. The model explained 15.2% of variance. Gini was the best and only predictor ($\beta = -.33$, $p = .05$); neither the number of groups ($\beta = .09$, $p = .60$) nor the interaction term ($\beta = .16$, $p = .36$) was significant.

Second, we further tested Hypothesis 5 by controlling for other potential related factors. Wilkinson and Pickett (2009) suggest that when inequality is measured across whole societies versus small areas, its association with social problems is 'stronger with inequality than with average income, and, in most cases, controlling for average income strengthens the associations with inequality' (p. 498). Therefore, in a regression analysis, both our measure of income inequality (Gini) and a measure of average income (GDP *per capita* 2009)[6] were regressed onto the Fisher standardized W-C correlations. Results showed that Gini predicted W-C correlations ($\beta = -.39$, $p = .08$) whereas GDP did not ($\beta = -.09$, $p = .69$; $R^2 = 11.6\%$).

Furthermore, arguably, the ideology concerning power and inequality in a given society (and not income inequality *per se*) might be responsible for the prevalence of ambivalent stereotypes. To control for the role of ideology, the Distance Power Index (PDI; Hofstede, 1980)[7] was considered. PDI indexes the extent to which the less powerful members of a society accept and expect power to be distributed unequally, in other words, indexes the extent to which society's inequality is endorsed by those at the bottom of the social ladder as much as by those at the top. 'The fundamental issue here is how a society handles inequalities among people' (http://geert-hofstede.com/dimensions.html).

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[5] *A relevant issue not addressed in the present work concerns the country's ethnic mix of each sample, which might be reflected in the selected target groups. In fact, a society's remarkable ethnic divisions might account for the relationship between income inequality and social problems. However, although Wilkinson and Pickett (2009) argue that ethnicity is an important social marker for status differentiation, and, as such, it might worsen the social and health problems deriving from status, their review of more than 150 studies suggests a primacy of income inequality over ethnicity (see also Wilkinson & Pickett, 2010). Therefore, the ethnic composition of the societies investigated here are unlikely to account for the relationship between inequality and ambivalence.*

[6] *GDP per capita 2009 was retrieved from The World Bank, http://data.worldbank.org/country, August 2011.*

[7] *PDI was retrieved from Geert Hofstede, http://geert-hofstede.com/countries.html, December 2011 (PDI is not available for Bolivia and Uganda, i.e., five samples).*
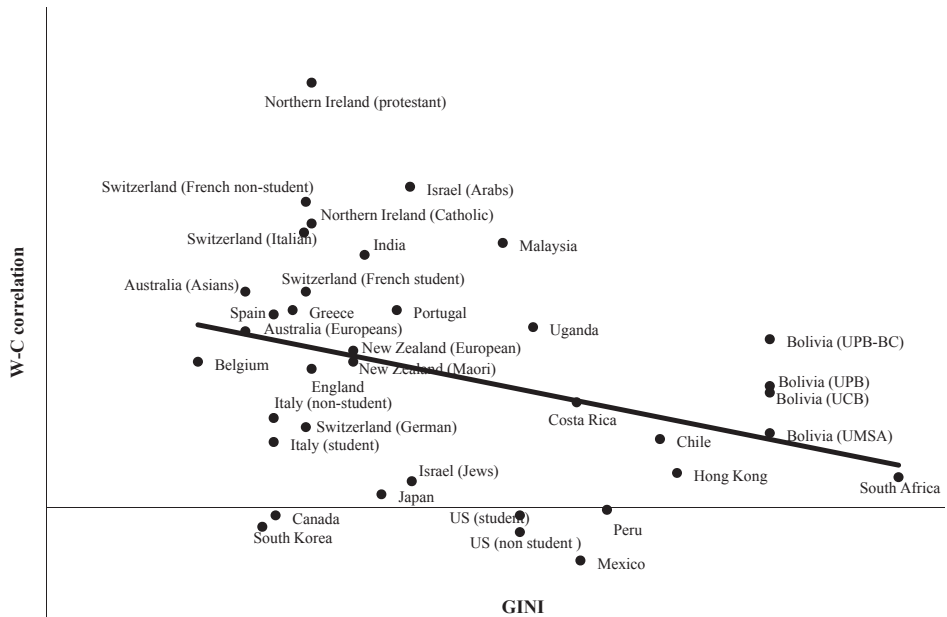
Figure 3. Gini coefficients and warmth-competence (W-C) Fisher standardized correlations, all samples.

Gini and PDI coefficients were regressed onto the Fisher standardized W-C correlations, and results showed that Gini predicted W-C correlations ($\beta = -.39, p < .05$) whereas PDI did not ($\beta = -.06, p = .74; R^2 = 16.9\%$).[8]

Status-competence and competition-warmth correlations were also Fisher standardized and correlated with Gini coefficients. Testing Hypothesis 6, competition-warmth and Gini coefficients significantly correlated, $r = .48, p < .01$, indicating that more equal societies show stronger negative competition-warmth associations; in other words, more equality, more dislike for competitive groups. In unequal societies, competition is more acceptable. Testing Hypothesis 7, no significant pattern was found for the Gini and the status-competence correlations ($r = .21, p = .23$).

Finally, we checked for the unpredicted structure-trait combinations: Status-warmth and competition-competence correlations. As previously, they were calculated at the level of target groups within each sample; both unpredicted patterns were inconclusive: For competition-competence, average $r = .26$, 16 positive correlations (range .40–.97, all ps < .05), four negative correlations ($r = -.48, p < .05$; three marginally significant, $r = -.45, -.40, -.35$, all ps < .06), the remaining 16 were non-significant. The status-warmth average $r = .27$, 14 positive correlations (range .39–.78, all ps < .05), the remaining non-significant (see Table 1). Fisher standardized correlations with Gini coefficients showed that Gini coefficients significantly correlated with the competition-competence correlations ($r = .49, p < .01$), indicating that in more equal societies being competitive does not necessarily imply being competent. Gini and status-warmth coefficients were only marginally associated ($r = -.29, p = .09$), suggesting a tendency, in more egalitarian settings, to perceive high-status groups as warm.

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[8] *A regression analysis including Gini coefficients, and both GDP and PDI was also performed. Gini predicted W-C correlations ($\beta = -.42$, p = .053) whereas GDP ($\beta = -.06$, p = .80) and PDI ($\beta = -.08$, p = .69) did not (R^2 = 17.1%).*

All the SCM correlations illustrated above and the Gini coefficients were finally correlated across samples. As Table 2 shows, when ambivalence is higher (i.e., low W-C correlations), both structural factors (i.e., status and competition) are more strongly related to competence. For lower degrees of ambivalence instead (i.e., high W-C correlation), status is associated with warmth. This latter result is not surprising given the very high status-competence correlation that we consistently find, which implies that any dimension correlating with competence (warmth in this case) will also correlate with status. Considering the Gini index, the cross-sample correlations therefore suggest that less egalitarian societies show more ambivalent stereotypes, and both high status and competition lead to perceiving groups as competent. More egalitarian societies, instead, have fewer ambivalent stereotypes, status and competition do not necessarily imply competence, and high-status groups tend to be perceived as warm.

Finally, given the cross-cultural nature of our data, the fact that scales' reliabilities, and sample sizes varied noticeably across countries, the SCM correlations and the moderating role played by income inequality were checked using meta-analytic techniques, which allow weighting correlations to minimize the variance between samples, and to correct for the unreliability of measures. Hedges and colleagues' method (Hedges & Olkin, 1985; Hedges & Vevea, 1998) was applied, and random-effects models were performed.[9] On each SCM index, two meta-analyses were carried out: First, as suggested by Hedges and Vevea (1998), on Fisher standardized correlations; second, as recommended by Hunter and Schmidt (2004), on correlations corrected for unreliability (see Lipsey & Wilson, 2001 for the formulas used). Inverse-variance-weighted mean effect sizes concerning the SCM correlations are summarized in Table 3. The significance of the average effect sizes can be inferred from the boundaries of the 95% confidence intervals constructed around the mean effect size, which in all cases presented in Table 3 do not contain zero.

Next, inverse-variance-weighted regressions (random-effects model) assessed the relationship between SCM correlations and income inequality. Weighted regressions were performed on both Fisher standardized and corrected for unreliability correlations. Results, summarized in Table 4, corroborated our findings and provided some support for our Hypothesis 7. In fact, when the status-competence correlations were corrected for unreliability, the Gini index resulted a significant moderator of such a relationship, namely, more inequality more competence for high-status groups. In contrast, the unpredicted, marginally significant relationship between income inequality and status-warmth associations disappeared when correlations were corrected for unreliability. Finally, note that inverse-variance-weighted regressions including Gini coefficients and other potential moderators (i.e., GDP and PDI) showed again the moderating role of income inequality on our W-C correlation (Fisher correlations: $\beta = -.41$, $p < .05$;

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[9] All meta-analytic calculations reported in the present study were performed using the SPSS macro developed by Wilson (2005). Random-effects models were chosen because they account for both within-study variability and variability arising from differences between studies, in this case samples (see Hedges & Vevea, 1998; Hunter & Schmidt, 2000). In the Hedges and Vevea's (1998) method, random-effects models weight each study (i.e., sample) by the inverse of the sampling variance plus a constant that represents the variability across the population effects (Lipsey & Wilson, 2001). According to several authors, real-world data are likely to have heterogeneous population effect sizes (e.g., Field, 2001, 2003; Hunter & Schmidt, 2000, 2004), and random-effects models should be the default approach in social sciences (Field & Gillett, 2010). Furthermore, random-effects models 'allow inferences that generalize beyond the studies included in the meta-analysis (unconditional inferences)' (Field & Gillett, 2010, p. 673; see also Hedges & Vevea, 1998). Finally, the homogeneity test (Q statistic) of effect sizes was taken into consideration: When significant, it indicates that the variability across effect sizes exceeds what would be expected based on sampling error.

Table 2. Across samples correlations among stereotype content model (SCM) indices and Gini coefficients

SCM indices	1	2	3	4	5	6
1. Warmth–competence	–					
2. Status–competence	−.38*	–				
3. Competition–warmth	.19	−.07	–			
4. Competition–competence	−.34*	.22	.68***	–		
5. Status–warmth	.87***	−.01	.15	−.29†	–	
6. Gini	−.34*	.21	.48**	.49**	−.29†	–

Note. The SCM correlations used to compute this table were Fisher standardized.
*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$; $^†p = .09$.

Table 3. Meta-analysis results. Random-effects models

Stereotype content model correlations	N	K	r_1	95% CI (r_1)	I^2 (r_1)	r_2	95% CI (r_2)	I^2 (r_2)
Warmth–competence	3,229	37	.44	.33, .55	93%	.51	.38, .65	88.6%
Status–competence	3,139	36	.92	.90, .94	93.2%	1.09	1.04, 1.13	0.6%
Competition–warmth	3,139	36	−.38	−.49, −.25	93.6%	−.44	−.58, −.30	87.3%
Status–warmth	3,139	36	.29	.17, .40	91.4%	.34	.20, .48	88.9%
Competition–competence	3,139	36	.34	.18, .48	95.5%	.38	.21, .55	92.3%

Note. N = total sample size for the given meta-analysis; K = number of samples included in the meta-analysis; r_1 = inverse-variance-weighted mean effect size calculated on Fisher standardized correlations; 95% CI = 95% confidence interval for the inverse-variance-weighted mean effect size (r_1 and related 95% CI reported in the table were converted back to r); r_2 = inverse-variance-weighted mean effect size on correlations corrected for unreliability; I^2 = index of heterogeneity (Higgins & Thompson, 2002): It is based on the Q homogeneity statistic (goodness of fit), $I^2 = (Q − (K − 1))/Q$, multiplied by 100 to express it as percentage. Larger values of I^2, the more heterogeneity.

Table 4. Inverse-variance-weighted regression results (random-effects model). Moderating role of Gini coefficients on stereotype content model (SCM) correlations

SCM correlations	Fisher standardized *r*			*r* Corrected for unreliability		
	b (95% CI)	β	p	b (95% CI)	β	p
Warmth–competence	−.01 (−0.03, −0.001)	−.33	<.04	−.01 (−0.02, 0.002)	−.27	.09
Status–competence	.009 (−0.005, 0.022)	.20	.22	.005 (0.0003, 0.009)	.36	<.05
Competition–warmth	.02 (0.009, 0.03)	.49	<.001	.02 (0.007, 0.04)	.42	<.01
Status–warmth	−.01 (−0.02, 0.001)	−.28	.08	−01 (−0.02, 0.003)	−.26	.12
Competition–competence	.03 (0.01, 0.04)	.48	<.001	.03 (0.02, 0.05)	.59	<.001

unreliability correction: $\beta = −.46, p < .05$), whereas results for GDP (Fisher correlations: $\beta = −.06$, $p = .79$; unreliability correction: $\beta = −.14$, $p = .53$) and PDI (Fisher correlations: $\beta = −.07$, $p = .69$; unreliability correction: $\beta = −.07$, $p = .71$) were non-significant.

Discussion

Data from 37 cross-national samples showed the expected significant, negative association between SCM warmth-competence correlations and Gini coefficients, indicating that income inequality implicates ambivalence. Furthermore, SCM's hypothesized negative relationship between competition and warmth emerged as even stronger in more equal than unequal societies, showing more dislike for competitive groups when income differences are smaller. Finally, more equal societies do not necessarily perceive competitive groups as competent.

The SCM hypothesizes that many societal stereotypes are ambivalent. The present work supported this assumption, but also that different societies display different degrees of ambivalence, and that these relate to the societies' income differences. Warmth and competence here behaved consistently with the compensation effect (Judd *et al.*, 2005), namely, groups perceived as low on one dimension are raised on the other. That such compensation appeared stronger in more unequal societies suggests that the more income inequality, the more social groups need to be rewarded, as if actual economic disparities are rationalized in social judgments.

Stereotype content model also hypothesizes that status predicts competence, whereas competition predicts (low) warmth. Status did predict competence in all samples, but this structure-trait combination did not correlate with societal income inequality, suggesting that both more and less equal societies share the meritocratic belief that status links to talent and abilities. Alternatively, as shown in Table 4, this result might be due to an error of measurement. In fact, when the status-competence correlations were corrected for unreliability, the Gini index became a significant moderator, showing that the more income inequality the more high-status groups are perceived as competent. Therefore, although this issue needs to be further investigated, it seems that more unequal societies tend to endorse meritocracy more than relatively equal ones, concealing inequality through exaggerating perceived status differences. Relatedly, status-warmth correlations were only marginally associated with income inequality, suggesting that in relatively equal countries, high-status groups also tend to be perceived as warm. However, when correlations were corrected for measures' unreliability, this tendency disappeared.

What instead consistently varies according to the degree of income inequality is the SCM-predicted competition-warmth association. More egalitarian societies especially perceive competitive groups as lacking warmth, suggesting that, given their relative income equality, competition seems unnecessary, so competitive groups are considered untrustworthy and perhaps exploitative. On the other hand, when economic disparities are bigger, people accept competition as inevitable: If competition is part of the system as a legitimate way to improve one's own position, then competitive groups are not disliked as much as in more egalitarian settings. These different views of competition held by relatively equal versus unequal societies also appear in the significant correlation between Gini coefficients and competition-competence correlations: The more inequality, the more people equate competition as competent (realistic behaviour), whereas the more equality, the less people think competition is necessarily competent.

Before discussing the theoretical and pragmatic implications of our findings, note that the majority of our samples came from relatively equal countries (23 samples: Gini between 28 and 39; 14 samples: Gini between 44 and 65). Adding data coming from more unequal countries as well as from countries with very high level of equality (e.g., Sweden, Norway) would allow us to optimally test our hypotheses. Furthermore, our participants

were mostly students: Although convenience samples might seem risky, compared with representative samples, as they would tend to limit our results only to college student perceptions, this method is justified on three counts. First, the convenience samples, being similar, would tend to decrease the predicted cultural differences, providing a conservative test of our hypotheses. Second, demographic differences within country do not modify the results (Cuddy *et al.*, 2007). Third, the SCM method asks for society's views, so it tends to emphasize a culturally shared lay theory of groups in society. Indeed, as suggested elsewhere, people from the same culture, whether actively biased or not, know their own cultural stereotypes (Devine, 1989; Fiske, 1993).

Nevertheless, especially in more unequal countries, access to higher education is linked to socio-economic status; consequently, it could be argued that our evidence may reflect the higher status people's point of view. Although, as noted above, SCM theory and method have proven a pancultural tool for detecting societal beliefs, future studies should extend these findings using more representative samples, and taking into account the role of the respondents' socio-economic position in addressing the ambivalence-inequality hypothesis: This would control for the possibility that higher versus lower status groups within a society would be more likely to hold ambivalent societal stereotypes in more unequal versus equal contexts, helping, furthermore, to theoretically bridge an individual level to a societal level analysis. However, United States, Italy, and Switzerland (French canton) results for student and non-student samples were very similar, as were results for non-student Maori (low-status group in New Zealand) and European New Zealanders (see Table 1).

The findings shed new light on how stereotypes potentially exert control. Stereotypes tell both how a given group of people allegedly do think, feel, behave (descriptively), and how they supposedly should think, feel, behave (prescriptively; Fiske, 1993). The descriptive and prescriptive aspects of stereotypes both exert social control, the description because it anchors social interactions to what is commonly believed about a certain group, the prescription because it demands the stereotyped group to conform to stereotypical expectations. In other words, 'stereotypes reinforce one group's or individual's power over another by limiting the options of the stereotyped group, so in this way stereotypes maintain power' and control (Fiske, 1993, p. 623). Furthermore, ambivalent stereotypes are also more easily accepted by the targets because the negative side of such beliefs is masked by the positive one (e.g., Eastwick *et al.*, 2006). Thus, descriptive and prescriptive aspects of ambivalent stereotypes may even be appealing (hence more constraining) for stereotyped people who perceive their group to be socially appreciated in one way or another (i.e., warmth or competence). All this likely encourages people's acquiescence, while discouraging, even under great social and economic inequalities, social change and collective action.

This does not imply that people will never challenge unequal systems. What the present work depicts is a static picture taken at a particular historical time. The literature on active minorities, for instance, has documented the influence that, over time, minority groups can exert on majorities, leading to system change; socio-psychological reseach has devoted considerable attention to the conditions that facilitate collective action and social change (see van Zomeren & Klandermans, 2011 [special issue]). Most relevant here, SCM links to the legitimacy and stability of status relations between groups as theorized by Tajfel (1981). In a recent work by Oldmeadow and Fiske (in press), groups were more differentiated on warmth in illegitimate than legitimate systems, but on competence in stable than unstable systems, highlighting the importance of the structural reality in shaping groups' stereotypes. Therefore,

ambivalent stereotypes may be the cognitive alternative available in unjust (illegitimate) but stable systems. Future studies should investigate to what extent income inequality affects people's beliefs and behaviours when systems are perceived as legitimate/stable versus illegitimate/unstable.

However, because 'the content of stereotypes can serve to maintain ideological support for the prevailing social system' (Kay *et al.*, 2007, p. 312), and specific ambivalent stereotypes link to system justification (Becker & Wright, 2011; Jost & Kay, 2005), ambivalence may be a system-justifying strategy endorsed at a macro-social level. Nowadays, given the evolution of democratic systems around the world, many societies (especially the most developed) need a way to maintain social control, supporting equality while facing severe economic disparities among people. Ambivalent societal stereotypes offer one solution. This seems indirectly supported by recent evidence showing that in the United States, 'stereotypes of 10 ethnic and national groups over 75 years revealed that as anti-prejudice norms grew stronger, historically negative aspects of stereotypes faded from mention' (Bergsieker, Leslie, Constantine, & Fiske, 2012, p. 1232), but the negative content is implied (Kervyn, Bergsieker, & Fiske, 2012), so 'modern stereotype assessment methods replicated the contemporary pattern of often-ambivalent stereotype content' (Bergsieker *et al.*, 2012, p. 1232). All these findings highlight the insidious effects of ambivalent societal beliefs. The solution, however, cannot be to go back to hostile and overt forms of stereotypes and prejudice. Therefore, future studies should investigate how to contrast the deterrent effects of ambivalence on social change, especially in light of Wilkinson and Pickett's (2010) argument: 'The historical evidence confirms the primacy of political will. Rather than greater equality waiting till well-meaning governments think they can afford to make societies more equal, governments have usually not pursued more egalitarian policies until they thought their survival depend on it' (p. 241).

Arguably, over the past few decades, social psychology has progressively lost its connection to sociology, neglecting the influence of structural factors on people's behaviours (Oishi, Kesebir, & Snyder, 2009): Modern social psychologists apparently lack a 'sociological imagination' (Mills, 1959) or 'the ability to look beyond personal experience and immediate situations to see the influence of social forces operating in a larger societal (or distal, macro) context' (Oishi *et al.*, 2009, p. 336). The importance of considering distant factors was well documented, for example, in Durkheim's (1897/1951) classic analysis of how collective factors, such as the degree of social integration and moral regulation in a society, affected suicide rates across societies; in McClelland's (1961) pioneering work connecting changes in need for achievement within a society to changes in its economic activities; and in Nisbett and Cohen's (1996) work linking economic and historical factors to violent behaviours in the Southern United States (i.e., the culture of honour). Recently, Fiske (2011) argues for status as dividing people through upward envy and downward scorn; Oishi, Kesebir, and Diener (2011) have shown how income inequality (i.e., Gini) affected Americans' happiness over the past 37 years; and Loughnan *et al.* (2011) have demonstrated that greater self-enhancement is found in societies with higher Gini. All this points out that the nature of people's behaviour can be traced not only in individuals but also in the collective reality created by groups, societies, institutions; that is, macro factors can explain micro-psychological phenomena (Oishi *et al.*, 2009; see also Oishi & Graham, 2010). The current work likewise links distal factors (income inequality) and social beliefs (ambivalent societal stereotypes) across nations. Here, some sociological imagination appears.

Acknowledgements

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix SI.A. Scales, main survey.

Appendix SI.B. Competence and warmth means for each cluster, within each sample.

Table SI.1. Demographic information, all samples, preliminary groups-listing study.

Table SI.2. Demographic information, all samples, main survey.

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