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Ethnocentrism versus group-specific stereotyping in immigration opinion: cross-national evidence on the distinctiveness of immigrant groups

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ABSTRACT

While widespread resistance to immigration is well established in advanced democracies around the world, the role of group-specific stereotyping in anti-immigration sentiment has received limited attention. We derive a novel measurement model to assess stereotyping in three Anglo-Saxon democracies – the US, Canada, and the UK – of the modal outgroup in each country (Hispanics in the US and South Asians in Canada and the UK) and Middle Easterners/Muslims. We show that considerable variation exists in degree of stereotyping against the two major immigrant groups. In the US case, we additionally document over-time variation in group stereotyping. In a final step, we demonstrate a relationship between group antipathies and immigration policy views, akin to other policy domains in which public support varies by the ethnic characteristics of policy beneficiaries. To our knowledge, this study is the first to map stereotypes of Muslims in the US in a comparative setting and over time after 09/11, and amongst the first to link views on immigration policies to group-based stereotypes.

Introduction

Widespread public resistance to immigration in advanced industrial democracies around the world is well established (Sniderman et al. 2000; Dimock, Doherty, and Suls 2013; Iyengar et al. 2013; Wike 2014; Valentino et al. 2017). There are nevertheless some critical gaps in the literature. In particular, we have only just begun to explore the existence of, or explanation for, variation in antipathy towards particular immigrant groups in different countries (but see Bobo and Massagli 2001 for the American context). Further work in this area is of some importance because (a) in most immigrant-receiving nations, newcomers are highly diverse on attributes including nationality, ethnicity, language, and religion, and (b) in policy domains other than immigration, past work makes clear that public support varies by the ethnic characteristics of policy beneficiaries. Take, for example, criminal justice punitiveness (Valentino 1999), or the extensive evidence demonstrating the 'racialisation' of welfare policy preferences in which non-whites are perceived

to prefer government assistance over financial independence (Gilens 1999; Harell, Soroka, and Ladner 2014 for a cross-national extension). Support for welfare programmes declines significantly when survey respondents are primed with information about non-white rather than white beneficiaries (Iyengar 1991; Gilens 1995, 1999; Schramm, Soss, and Fording 2003; Iyengar et al. 2013).

Less attention has been paid to the group-based dynamics in public opinion about immigration. Some evidence suggests that general ethnocentrism lies at the core of anti-immigration sentiment worldwide (Sniderman et al. 2000; Kinder and Kahm 2010; Hainmueller and Hopkins 2014) such that negative attitudes about all outsiders drive down support for open border policies more or less equally. The power of measures of general ethnocentrism, however, seems to mask the impact of attitudes about particular group attitudes, as recent work has found (Ford 2011; Harell et al. 2012; Valentino, Brader, and Jardina 2013). Work on perceptions of 'deservingness' of racial or ethnic groups (e.g. Masuoka and Junn 2013) also points to the potential importance of group-specific attitudes. From this alternative perspective, the depth of public opposition to immigration may be driven mostly by the influx of particular non-western (and typically non-white) immigrants, and to natives' negative stereotypes of these groups (Burns and Gimpel 2000; Kinder and Kahm 2010; Lu and Nicholson-Crotty 2010). Especially in the aftermath of one of the most divisive US presidential elections in recent history, centred around Donald Trump's campaign appeal focusing on a strong stance against immigration,[1] establishing a link between group-based stereotypes and policy opinion on immigration among the mass public has gained newfound importance.

There are, in sum, good reasons to further explore the impact of group-specific attitudes on support for immigration. Most importantly, the target population of immigration policy beneficiaries is diverse, and Western societies have a long tradition of conferring benefits on the basis of ethnicity-nationality – with white Europeans being accorded preferential treatment over newcomers from Asia, Latin America, or Africa (Ngai 1999; Zolberg 2009; Masuoka and Junn 2013).[2] If stereotypes about these specific groups vary, and the salience of each group goes up and down depending on the historical moment, then public opinion about immigration policy would be more volatile than a simple ethnocentric account would predict.

We begin by reviewing the content of group stereotypes in relation to immigration policy preferences, before we develop a general theory of group salience. Then, we present evidence of three sorts lending empirical support to our theory. First, we develop and validate latent ethnic/racial stereotype measures, combining both economic and cultural attributes taken from cross-national survey data collected in 2010, using item response theory (IRT). This approach allows us to compare content and negativity of stereotypes across countries, groups, and, in the US, where we collected a second round of data in 2016, time. All comparisons confirm our general theoretical approach suggesting that salience of groups influences how negatively that group is perceived. Second, we document how those stereotypes matter with regard to support/opposition to immigration more broadly. We show that the linkage between group stereotypes and immigration policy preferences varies considerably across countries, and is likewise contingent on the country-specific salience of particular immigrant groups: Attitudes about the most salient and in turn negatively viewed group in each country, rather than a general antipathy towards all outsiders, powerfully drive immigration policy views.

Immigrant group stereotypes and immigration policy preferences

Existing research suggests that public opposition to immigration and immigrants has crystallised around the anticipated economic versus cultural threats posed by newcomers (for a recent review of this vast literature, see Hainmueller and Hopkins 2014). For example, some might oppose new immigration because it could cause the welfare rolls to swell, thus increasing natives' tax liabilities. Or they might be concerned about increasing competition for scarce social welfare assistance (Cornelius and Rosenblum 2005; O'Rourke and Sinnott 2006; Mayda 2008). For some immigrants may compete for jobs and/or drive down wages (see Malhotra, Margalit, and Mo 2010). These fiscal burden and labour competition arguments both imply that for natives an especially relevant attribute of immigrants is their skill level and ability to remain financially self-sufficient. It is of some significance, then, that the literature on racial stereotypes – which increasingly applies to immigrants in the current era – indicates that white Americans differentiate between ethnic groups on these traits: for instance, they associate low levels of job skills and welfare dependence with blacks and Latinos, but not with Asians (Timberlake and Williams 2012; Masuoka and Junn 2013; Reyna, Dobria, and Wetherell 2013).

The major alternative hypothesis is that beliefs about whether newcomers will disrupt the culture of the host nation will most powerfully drive opposition. Immigrants are seen as demanding special privileges to retain their distinctive linguistic and cultural heritage even while they refuse to make adequate efforts to fit in (see Alba and Nee 2003; Sides and Citrin 2007; Hopkins, Tran, and Williamson 2014). There is a limited body of evidence with which to compare different immigrant groups on traits related to assimilation, but existing work is suggestive. For example, one study conducted immediately following the 11 September 2001 attacks found that American college students rated Middle Eastern immigrants as more culturally distant than Hispanics (Hitlan et al. 2007). Furthermore, in the lead-up to the 2016 US presidential campaign almost half of Republicans expressed support for a general Muslim registry in a 2015 YouGov survey.[3]

Given the recent trajectory of North American and European military/counter-terrorism policy, and ensuing patterns of elite and media discourse depicting Middle Easterners and Muslims as potential jihadists (see, for instance, Said 1997; Hamada 2001; Merskin 2004; Shaheen 2009), we anticipate that many citizens from the west will view Middle Easterners as politically extreme. What little evidence there is tended to substantiate this expectation: Many citizens in the west believe Middle Easterners/Arabs in particular are violent (Sides and Gross 2013) and inclined to religious fanaticism (Oswald 2005; Panagopoulos 2006; Reyna, Dobria, and Wetherell 2013; Statham and Tillie 2016). In one study that compares Middle Easterners with other immigrant groups, Americans rated Middle Eastern and Latino immigrants as significantly more violent than Asians and Europeans (Timberlake and Williams 2012). However, Creighton and Jamal (2015) find that Christian immigrants are viewed as negatively as Muslim immigrants when controlling for social desirability bias. This study also suggests that stereotypes of Middle Eastern immigrants are not entirely negative: They share some of the positive traits attributed to Asians including high levels of technical skill and the ability to make contributions to the host nation's economy (see Hitlan et al. 2007; Reyna, Dobria, and Wetherell 2013).

In summary, work investigating both the antecedents of opposition to immigration and the attribution of traits to racial minorities provide clues concerning stereotypes about

immigrants from the Middle East compared to other nations. These include perceived distinctiveness in terms of economic skill, motivation to achieve, cultural proximity, willingness to assimilate, and law-abidingness. Our research design, described below, includes multiple survey questions tapping perceptions about these attributes as they apply to different nationality groups.

Immigrant group stereotypes as a function of salience

Country-specific dynamics, perhaps linked to patterns of media coverage highlighting threats from particular groups, can substantially explain policy support. Valentino, Brader, and Jardina (2013) found that after the controversial Proposal 187 was passed in California in 1994, the impact of attitudes about Latinos in particular became far more powerful a predictor of immigration policy opinion. A simple examination of the news media's emphasis on specific groups in each country guides our expectations. Using a Lexis Nexis search, we counted the total number of articles that mention two groups in relation to immigration issues in each country's respective newspapers of record during the period in which our survey was in the field:[4] Middle Easterners versus the most populous or 'modal' immigrant group. In the US, this was Latinos. In Canada and Britain this was South Asians. Table 1 indicates that Latinos are by far the most mentioned immigrant group in the US, accounting for more than sixty percent of all coverage. In the UK, the pattern is reversed, with Middle Easterners receiving two-thirds of the coverage. In Canada, we likewise find more coverage of Middle Eastern immigrants compared to South Asian immigrants. While the pattern is not as clear, we note that Middle Easterners make up a relatively small share of the immigrant population.[5] Without knowing the tone or trends in this coverage it is difficult to make very strong inferences about its potential effects on public opinion, but the general pattern leads us to predict that stereotypes about Middle Eastern immigrants will be more salient in Canada and Great Britain than stereotypes about the modal outgroup; while in the US stereotypes about the modal outgroup will be more salient than stereotypes about Middle Eastern/ Muslim immigrants. We hypothesise that this gradient of saliency should result in stereotypes about each of these groups having a different impact on immigration policy preferences in each country. Specifically, we predict that the overall salience of the group (a) impacts how negative the group stereotype is, and (b) in turn will moderate the degree to which attitudes about that group predict immigration policy views.

We have good reason to believe that in the US case, this media emphasis on Hispanic over Middle Eastern immigrants might have changed post 2010 as a function of the recent trajectory of North American military/counter-terrorism policy. Indeed, when we repeat this exact same analysis for 2016 only, we find a reversed pattern, with 417 mentions of Hispanics in relation to immigration, but 515 mentions of Middle Easterners in relation

Table 1. Mentions of the modal group and middle easterners in connection with immigration issues from 01/01/2009 to 12/31/2010.

Country	Modal group	Middle eastern
US	2382	1584
Canada	848	882
UK	749	1530

to immigration. This expected change of emphasis allows us to test our theory within country, over time. If salience of Middle Easterners has increased over the years, our theory would contend that stereotypes about Middle Easterners might have eclipsed stereotypes about Hispanics. We collected a fresh round of data in 2016 for the US only to test this derivative of our general theory.

Data and measurement methods

To investigate attitudes towards immigration, we make use of a subset of studies from the Comparative Immigration Attitudes Survey. The survey was fielded by YouGov to representative samples in 13 countries between 2010 and 2013, and includes batteries of questions on immigration policy preferences and evaluations of specific immigrant groups. We are interested in attitudes towards immigrant nationality groups in the three major Anglo-American democracies (Canada, Great Britain, and the US) and within each nation focus the comparison on immigrants from the Middle East and the modal nationality group within the immigrant population of the host nation (Hispanics in the US, South Asians in Canada and Britain). The country-studies in question were all administered between January and July 2010.[6]

We measure anti-immigrant stereotypes through a set of closed-ended trait ratings that capture the two key themes underlying opposition to immigration: economic self-sufficiency and cultural assimilation. For the former, we use the traits of laziness and ability to help the host nation make technological and scientific advances. Items tapping willingness to learn English, eagerness to assimilate, insistence on special privileges, and religious fanaticism represent concerns over assimilation. Finally, given evidence that natives associate immigrants with criminal activity (e.g. Butcher and Piehl 1998; Killias 2009; Lopez and Light 2009; Timberlake and Williams 2012), we also asked respondents to rate each group on law-abidingness. Response options numbered either 7 or 5 (in the case of ability to help the host nation make technological and scientific advances) ranging from 'applies extremely well' to 'does not apply well at all'. We collapse these into binary applicable versus non-applicable responses to obtain a dichotomous positive–negative trait rating, which makes direct interpretation of our measurement models possible. In the later parts of the paper, we use the uncollapsed items to assess the consequences of stereotyping.[7]

To test whether stereotyping against Middle Easterners has indeed eclipsed, or even surpassed stereotyping against Hispanics in the US post 2010, we collected survey data in October 2016 via the opt-in mobile panel Pollfish (N=2001) on the exact same items – with one notable exception: we included an item on dependence on government handout instead of ability to help the host nation make technological and scientific advances.[8] All items range from 'applies very well' to 'does not apply well at all', and we again collapse these into binary applicable versus non-applicable responses to obtain a dichotomous positive–negative trait rating. Because these data are a convenience sample due to the 'opt-in' nature of our survey, all analysis using these data rely on survey weights based on race, education, gender, age, and party, as specified in the appendix.

Measuring racial-ethnic stereotypes is challenging for a variety of reasons, but measurement error can be reduced by creating scales based on multiple items tapping into the

same underlying construct (e.g. Ansolabehere, Rodden, and Snyder 2008). Stereotypes cannot be observed directly, but are instead latent traits estimated via observed responses to individual survey items. However, the standard scaling approach – producing a scale score by adding individual responses or taking the means of individual responses – requires unrealistic assumptions, most notably that each items contributes equally to the latent concept. We therefore measure stereotypes using Item Response Theory (IRT), a class of latent variable models that link dichotomous variables to one or more underlying latent traits (in this case immigrant stereotypes) while allowing for variability in the contribution of different items to the trait in question. If, for example, the religious fanaticism rating contributes more than the laziness rating to the underlying stereotype of Middle Eastern immigrants, the IRT model will capture this variation in the discrimination parameters.

We rely on the two-parameter logistic (2PL) IRT model, which models the probability of a positive (i.e. negatively stereotyped) answer to each of the trait ratings conditional on individual level z_i, the so-called ability level (in this case latent willingness to stereotype), and item-level parameters β_j (i.e. discrimination parameters comparable to the loadings in conventional factor analysis) and intercepts α_j. We address four related questions: (1) the dimensionality of the immigrant stereotype concept, (2) variation in the importance of different traits to stereotypes of particular groups and across different populations, (3) the valence of stereotypes (i.e. which immigrant group is more or less disliked?), and (4) the relatedness of stereotypes to immigration policy preferences.

We first investigate whether our model of group-specific stereotyping – a country-specific model specifying two latent dimensions corresponding to the two target groups – provides a better fit to the trait ratings than a less constrained model positing an overarching stereotype of immigrants in general and an equally constrained model positing two latent dimensions corresponding to cultural and economic threats. Our preferred group-specific model and the equally constrained model with separate cultural and economic threat dimensions can be written as a two-dimensional 2PL IRT model (Equation (A1)).[9]

Equation 1: Two-dimensional 2PL IRT Specification where i denotes individuals, j denotes items, $P(x_{i,j} = 1)$ is the probability of a 'correct' (i.e. stereotyped) response of individual i to Item j, $z_{k,i}$ is the individual unobservable latent trait or ability for dimension k, $\beta_{k,j}$ are the slope or discrimination parameters for dimension k and α_j are the intercepts

$$P(x_{i,j} = 1 \mid z_{1,i}, z_{2,i}, \beta_{1,j}, \beta_{2,j}, \alpha_j) = \frac{1}{1 + e^{-(\alpha_j + \beta_{1,j} * z_{1,i} + \beta_{2,j} * z_{2,i})}}.$$

For our preferred model, we assume that each group stereotype consists exclusively of items referring to the target immigrant group, and does not include any items capturing beliefs about the second group (shown in Figure 1).

For the alternative two-dimensional model that posits separate stereotypes concerning the cultural and economic attributes of immigrants, we assume that each group stereotype consists exclusively of items referring to the concept in question. Finally, we fit a more parsimonious, one-dimensional IRT model with one generic stereotype applicable to all immigrants (both shown in Figure 2).[10]

We compare the fit of the two alternative measurement models to our preferred model of group-specific stereotyping using a standard indicator of model fit that punishes model
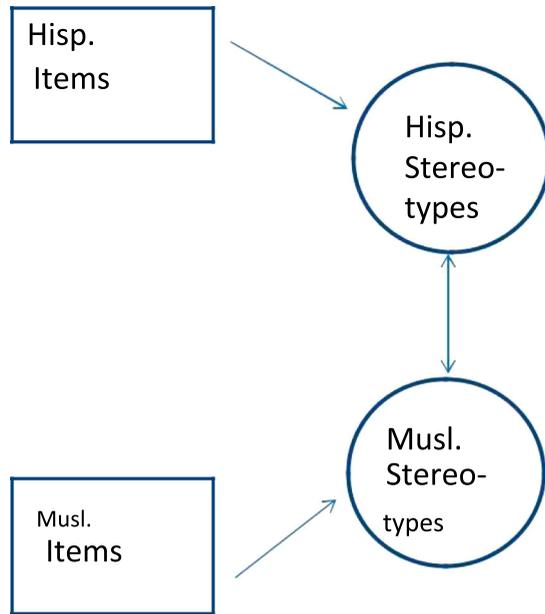
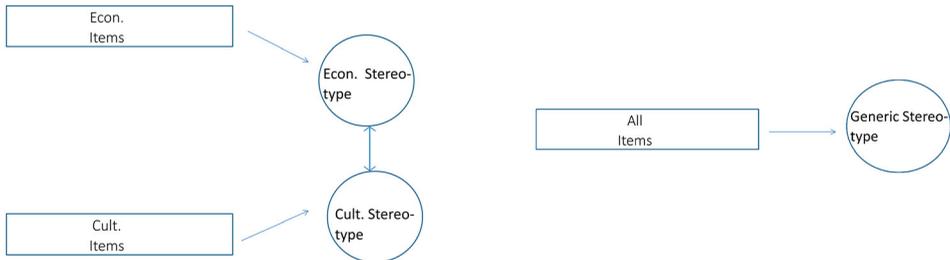**Figure 1.** Conceptual path diagram for preferred model.

Figure 2. Conceptual path diagrams for alternative models.

complexity, the Bayesian Information Criterion (BIC). In essence, while many simple fit statistics always favour the model with additional parameters because it fits the data better, the BIC does not. We find that our preferred model fits the data better than either of the alternatives.

We next assess differences in the importance of specific traits to group stereotypes within and across countries by comparing discrimination parameters β_j. A more positive discrimination parameter signals a stronger relation between the underlying stereotype and the item in question. In a within-country comparison, for example, a higher discrimination parameter for the item tapping perceptions of religious fanaticism in the Middle Eastern stereotype factor compared to the Hispanic stereotype factor means that perceptions of religious fanaticism are driving Middle Eastern stereotyping more than Hispanic stereotyping. The same logic applies to cross-country comparisons. If, for example, the discrimination parameter for the religious fanaticism item is higher in the US model

than the Canadian model, we can conclude that perceptions of religious fanaticism are driving Americans' stereotypes of Middle Eastern immigrants more than Canadians' stereotypes of that group.

Item discrimination parameters shed no light on the evaluative direction or level of negativity in the trait ratings. We use our preferred model, i.e. two dimensions applied to the modal group and Middle Easterners, to address the relative standings of immigrant groups *within* countries and their relative standings *across* countries on both, specific trait ratings and the overall stereotype.[11] Placing two sets of constraints on the model as specified in detail in the methodological appendix such that we obtain two separate models – one comparing relative standings of immigrant groups within countries across groups and one comparing relative standings of immigrant groups across countries within groups – allows us to directly model the respective intercepts α_j: the higher the value of the intercept, the more negative the trait in question is rated, conditional on the latent trait. For example, a more positive intercept for the item tapping perceptions of laziness of Hispanics in the US as opposed to Middle Easterners in the US in our within-country-across-group–comparison model indicates that Hispanics are penalised comparatively more than Middle Easterners. Similarly, a more positive intercept for the item tapping perceptions of laziness of Muslims in the UK as supposed to Muslims in the US in our across-country-within-group–comparison model indicates that Muslims in the UK are penalised comparatively more than Muslims in the US. In order to examine which of the two immigrant groups has the strongest negative stereotypes within each country or to compare the standing of specific immigrant groups across countries, we can simply compare the sums of the appropriate intercepts in the respective models. For example, a higher intercept-sum for Hispanic items than Middle Easterner items in the US indicates that Hispanics are seen more negatively in the US.[12]

In order to identify which stereotypes are most influential as predictors of opposition to immigration openness, we rely on OLS regressions. As our dependent measure of policy opposition, we use ability estimates from a graded response model applied to a set of five questions pertaining to preferences on immigration policy.[13] As our main predictors of interest, we use the latent trait score estimates of the modal group and Middle Eastern stereotypes derived from our preferred model specification, but this time abstain from collapsing the items and fit the model as a graded response model in order to take advantage of the entire variance–covariance structure of the data.[14] As additional predictors, we use a host of variables known to drive immigration policy preferences (e.g. Kinder and Kahm 2010) – respondent gender (1=Female), age, an index of racial resentment in the US and an index of minority resentment appropriate for the distinctive contexts in the UK and Canada,[15] a measure of education, income, two indicators of race (corresponding to being a member of the modal immigrant group and being Black), respondent's political orientation, and, exclusively in the US models, a proxy to gauge proximity effects: the proportion of persons born in Muslim countries per zip code taken from the 2000 Census for the Middle Eastern model,[16] and the percentage of Hispanics at the zip-code level for the model predicting stereotypes of Hispanics taken from the 2010 Census.[17] Because the dependent variable – latent immigration policy preferences – and the stereotype scores are constrained to lie on the same metric, we can then compare the relative importance of the two group stereotypes directly by taking the ratio of the relevant regression coefficients.

Results

Model fit

We compare our theoretically preferred model (the two group-specific stereotyping dimensions that are correlated) to the one-dimensional model and a different two-dimensional model specifying trait-specific rather than group-specific dimensions. Our model fits the data significantly better than the other two,[18] as indicated by a substantively lower BIC.[19]

To assess the overall fit of our model, we can use Equation (A1) to compute the percentage of answers to our survey questions that the model predicts correctly. The model predicts 79.6% of the combined responses correctly,[20] (80.5% for the US model, 77.8% for the Canada model, and 79.3% for the UK model), a significant improvement over a coin toss.[21] To visualise model fit, we display the separation plots (Greenhill, Ward and Sachs 2011) for both groups in each of the country-specific models separately. Actual outcomes (0's coloured in light and 1's coloured in dark) are ordered according to the corresponding fitted value of our model (also visualised by the black trace line). A perfectly fitting model would produce a separation plot that completely separates light and dark colours by placing all light elements to the left and all dark elements to the right. In contrast, a random model pattern would produce a separation plot for which no pattern would be discernible such that dark and light elements would appear haphazardly. This visualisation allows us to get a much more granular understanding of model fit than simply relying on the percentage correctly predicted, which is commonly reported in the IRT literature. As Figure 3 indicates, the UK and US models fit the data well for both immigrant groups, while the Canadian model performs almost as well.

Importance of various traits in driving stereotyping

To assess which particular traits contribute the most to the group stereotypes in each country, we first compare the discrimination parameters within countries and immigrant groups (Figure 4). In the case of Hispanics in the US, the stereotype is shaped most by the trait of willingness to learn English. Perceptions of criminality are also central, while beliefs about religious fanaticism are entirely irrelevant. Canadians view South Asian immigrants primarily in terms of their willingness to assimilate, criminality and fluency in English, while fanaticism, laziness and insistence on special privileges contribute very little. In the UK, the traits of language fluency, religious fanaticism and insistence on special privileges drive South Asian stereotyping the most.
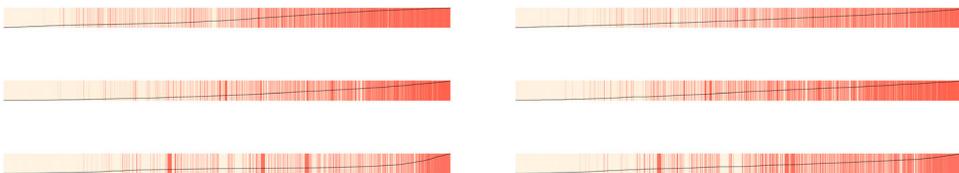

Figure 3. Separation plots for the US model (first row), the UK model (second row) and the CA model (third row); plots for fit of the modal group dimension are displayed in the first column and the plots corresponding to the fit of the middle eastern group dimension are displayed in the second column.
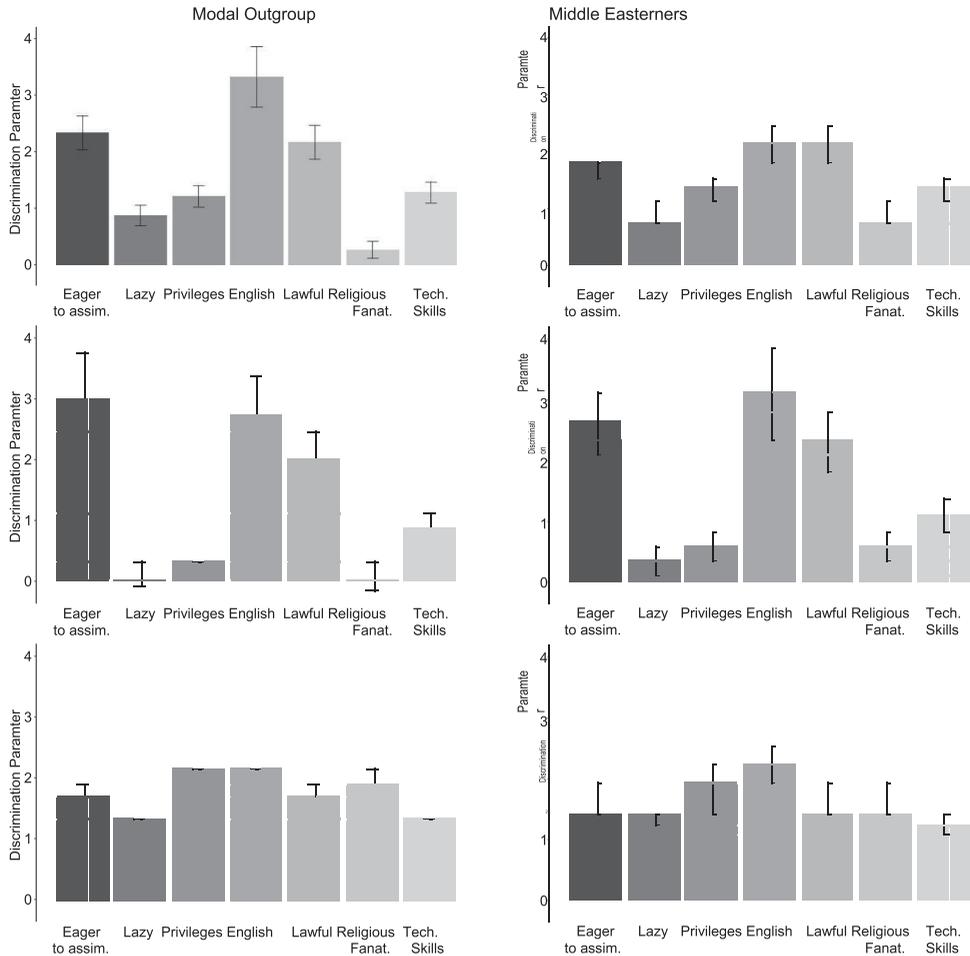
Figure 4. Composition of group stereotyping in the US (first row), CA (second row) and the UK (third row).

Criminality and language fluency are driving Americans' stereotypes of Middle Eastern immigrants. Surprisingly, religious fanaticism is less important, as is laziness. It is possible that the greater importance of criminal behaviour over fanaticism might reflect beliefs about Middle Easterners' involvement in terrorist activity. More importantly, there is little variation in that item – over 56% of respondents view Middle Easterners as religiously fanatic. In Canada, perceptions of willingness to assimilate, criminality and language fluency are the key traits that inform Middle Eastern stereotypes, while concerns about laziness contribute very little. Finally, similar to patterns in the US and Canada, perceptions of language proficiency contribute the most to Middle Eastern stereotypes in the UK.

We can also assess if group stereotypes are more or less dependent on a particular trait by comparing discrimination parameters within countries and across groups. In the US, beliefs about willingness to assimilate are driving stereotypes of Hispanics more than stereotyping of Middle Eastern immigrants. In the UK and Canada, concerns over cultural

assimilation apply evenly to Middle Easterners and South Asians. Laziness, insistence on special privileges, criminality and proficiency with technology are equally relevant to the modal group and Middle Eastern stereotype in all countries. Concerns over willingness to learn English, however, while applying equally to both groups in the UK and Canada, are significantly more important to stereotypes of Hispanic immigrants in the US. Finally, as anticipated, the trait of religious fanaticism contributes more to stereotypes of Middle Easterners in the US and Canada, but contributes equally to Middle Eastern and South Asian stereotypes in the UK. This pattern is understandable in light of the significant number of Muslim South Asian immigrants.

Last, we can compare the association of traits to group stereotypes across countries. Concerns over cultural assimilation, for instance, contribute more to Americans' views of Hispanics than to Canadians' views of South Asians. However, cultural assimilation proves more associated with stereotypes of Middle Easterners in Canada, relative to the US and UK. The traits of laziness and insistence on special privileges matter the most to the English, and the least to Canadians. Language fluency is more important to Americans' stereotypes of Hispanics than to Britons' views of South Asians, but applies roughly equally to Middle Eastern stereotypes in all countries. Finally, the relative influence of criminal activity and lack of technical skills to both group stereotypes are uniform across countries.

Stereotype intensity

First, we compare the intensity of negative stereotypes along particular traits *within* countries (Figure 5). Note that meaningful comparisons can only be made for intercept pairs, and thus only for the same traits. In comparison with Middle Easterners, Americans view Hispanics as marginally less eager to assimilate, more lazy, much less willing to speak English, and as less technically proficient. On the trait of religious fanaticism, however, Americans view Middle Easterners more negatively. In 2016, this dynamic has indeed changed, as anticipated. Hispanics are still seen as less eager to assimilate and less willing to speak English, but Middle Easterners are now seen as marginal less lawful, perhaps a late derivative of associating Middle Easterners with terrorism. Interestingly, Middle Easterners are also seen as more dependent on government handouts, but we lack a comparison to 2010.

Canadians compare Middle Easterners unfavourably to South Asians on willingness to assimilate, insistence on special privileges, criminality, fanaticism, and technical skills. The same pattern applies to the UK – the English view Middle Easterners more negatively than South Asians on all the traits. Thus, in terms of the valence of the overall group stereotype, Hispanics were significantly worse off than Middle Easterners in the US in 2010, but we found no discernible difference anymore in 2016.[22] In contrast, Middle Easterners are the more disliked group vis-á-vis South Asians in both Canada and the UK[23]

Across countries, we can again decompose the negativity of overall group stereotypes into negativity on particular trait ratings (Figure 6). Once again a meaningful comparison can only be made for intercepts across the same trait, and not across different traits. In the case of the modal group, we see that Hispanics in the US are seen as more prone to criminal activity and less willing to learn English than South Asians in the UK. In fact, with the exception of religious fanaticism (and many South Asians living in the UK are Muslim),
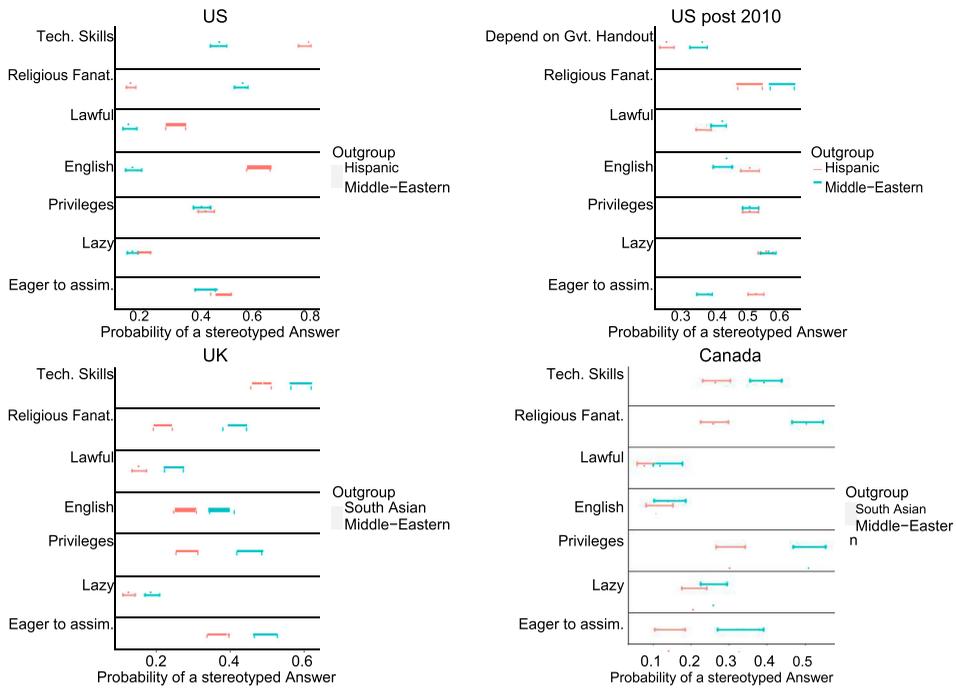
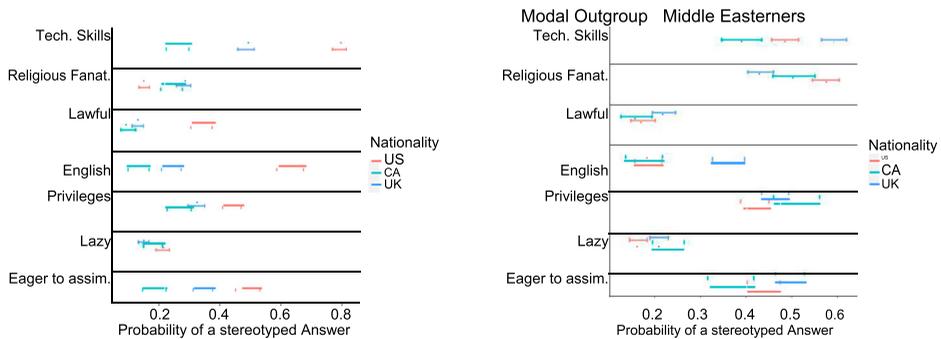**Figure 5.** Valence of trait ratings within countries, across groups.

Figure 6. Valence of trait ratings across countries, within groups.

the image of South Asians in the UK on every other trait is less negative than the corresponding image of Hispanics in the US. The exact same pattern applies to the Canada–US comparison, although there the difference in perceived laziness is only marginally significant.

The standing of Middle Eastern immigrants does vary across the three countries. They are perceived to be least eager to assimilate in the UK, followed by the US, and Canada. The English also judge Middle Easterners especially harshly on language proficiency, while as expected, Americans are the most prone to associate them with religious fanaticism. Ratings of Middle Easterners on laziness, criminality, and insistence on special privileges, however, are similar across countries although they are marginally less negative in

the US than in the other two countries. In terms of their technical skills, Middle Easterners are seen most negatively in the UK, followed by the US and Canada.

These patterns are generally corroborated when we compare overall stereotype scores across countries. In the US–Canada and US–UK comparisons, Hispanics are clearly worse off than South Asians.[24] In the US–UK comparison, the English hold more negative views of Middle Easterners than Americans,[25] while in the US–Canada comparison, it is the Canadians who have less negative view of Middle Easterners, though this difference is not statistically significant.[26]

Group stereotypes and policy views

Finally, we turn to the question of how immigrant group stereotypes contribute to policy preferences. Our hypothesis is that stereotypes about distinct groups will not uniformly predict policy opinions in each country. Instead, we expect that the stereotypes about the most salient and most negatively stereotyped immigrant threat will be the most powerful driver of immigration policy opinions in each country. By this logic, stereotypes of Hispanic immigrants in the US and Middle Easterners in the UK and Canada should be especially relevant to policy opposition. We present a model with the same predictors across countries (see Table 2).

In all models, both stereotype variables lie on the same scale so that the relevant regression coefficients are standardised.[27] Therefore, the two standardised coefficients associated with the group stereotype scores enable us to directly compare the relative effects of the two stereotypes.[28] In the US, Hispanic stereotypes exert a very powerful effect on policy opposition. A move of one standard deviation in Hispanic stereotyping shifts policy opposition by about 30% of a standard deviation ($\beta = 0.31$), while a move of one standard deviation in Middle Eastern stereotypes shifts opposition by only 22% of

a standard deviation ($\beta = 0.22$). Thus, stereotypes of Hispanics exert $\dfrac{0.31}{0.22} = 1.41$ times

Table 2. Predicting policy opposition to immigration with modal group and middle eastern stereotyping across countries.

Variable	US	UK	Canada
Constant	0.09 (0.08)	0.12 (0.08)	−0.09 (0.13)
Modal-outgroup stereotyping	0.37* (0.03)	0.17* (0.04)	−0.02 (0.07)
Middle-eastern stereotyping	0.19* (0.03)	0.43* (0.04)	0.51* (0.07)
Racial/minority resentment	0.24* (0.02)	0.01 (0.02)	0.00 (0.03)
Female	0.11* (0.03)	0.04 (0.03)	−0.05 (0.05)
Age	0.09* (0.02)	0.06* (0.02)	−0.04 (0.03)
Education	−0.12* (0.02)	0.00 (0.02)	−0.19* (0.03)
Left	−0.12* (0.04)	−0.17* (0.04)	0.06 (0.06)
Right	−0.03 (0.04)	0.19* (0.04)	0.21* (0.06)
Income	−0.05* (0.02)	−0.08* (0.02)	0.05* (0.02)
Black	0.19* (0.06)	−0.46* (0.16)	−0.78* (0.27)
Modal outgroup	−0.17* (0.07)	−0.39* (0.11)	−0.30* (0.09)
Zip-code-level proportion Hispanics	−0.00 (0.00)		
Zip-code-level proportion Born in Muslim Countries	0.76 (1.58)		
N	1671	2054	821
R^2	0.54	0.43	0.35
Adj. R^2	0.53	0.43	0.34
Resid. sd	0.65	0.71	0.69

Notes: Robust standard errors (U.K and Canada) or robust standard errors clustered at the zip-code level (US) in parentheses.*Significance at the $p<.05$ level.

more impact than Middle Eastern stereotypes on policy opposition. Parallel to the case of welfare, the most salient immigrant group drives policy preferences on immigration.

The same graded pattern applies to Canada and the UK where stereotypes of Middle Easterners prove substantially more influential than stereotypes of South Asians. In the UK, a move of one standard deviation in Middle Eastern stereotyping shifts policy opposition by about 43% of a standard deviation ($\beta = 0.43$), while the same move in South Asian stereotypes shifts opposition by only 23% of a standard deviation ($\beta = 0.23$). Thus, relative to stereotyping of South Asians, Middle Eastern stereotypes are $\frac{0.40}{0.24} = 1.87$ times more important in explaining policy opposition. In Canada, a move of one standard deviation in Middle Eastern stereotyping shifts policy opposition by about 46% of a standard deviation ($\beta = 0.46$), while that change in South Asian stereotypes shifts opposition by a statistically insignificant 12%.[29]

Discussion and conclusion

To the best of our knowledge, this study represents the first attempt to map stereotypes of Middle Eastern versus other immigrant groups cross-nationally. Despite the association of Middle Easterners with the 9/11 attacks, in the immediate aftermath of 09/11, Middle Eastern immigrants were viewed relatively favourably in the US, at least vis-á-vis Hispanic immigrants. Concerns over language assimilation are driving stereotypes of Hispanic immigrants, and they were viewed especially negatively on this trait and also in terms of their association with criminal activity. Middle Easterners, while generally viewed as prone to religious fanaticism, enjoyed more positive ratings on other traits. In 2016, anti-Muslim sentiment has increased and ultimately eclipsed anti-Hispanic stereotyping, as media coverage has shifted away from a focus on Hispanic immigrants to a focus on Middle Eastern immigrants.

In Canada and Britain, the baseline group of South Asian immigrants is seen significantly more favourably than Middle Easterners. Especially in the UK, Middle Easterners are rated more harshly on *every* trait we measure. In Canada, Middle Easterners are seen more negatively with regard to eagerness to assimilate, insistence on special privileges, religious fanaticism, and technical skills.

In one respect, our findings reinforce previous findings to the effect that concerns over cultural assimilation dominate beliefs about adverse economic consequences as explanations of opposition towards immigration and immigrant groups (for cross-national evidence on this pattern, see Sides and Citrin 2007), although we acknowledge that our data were not primarily collected to test this hypothesis.[30] In our case, traits bearing on cultural assimilation prove more important to stereotypes of immigrant groups. To compare the importance of traits regarding cultural assimilation and economic self-sufficiency, we can simply take the mean of the related discrimination parameters. A higher average discrimination parameter for traits describing beliefs about cultural assimilation would indicate that these traits drive the underlying group stereotype more. In fact, in all three countries, we find that traits associated with assimilation drive stereotyping more than traits referring to economic productivity.[31]

Finally, our results also indicate that stereotypes of the more salient group are especially consequential for policy preferences. A considerable body of US scholarship

suggests that policy preferences are 'race-coded' in the sense that stereotypes of racial minorities influence policy opinions. This phenomenon has been documented repeatedly in the case of social welfare and crime: Americans with higher levels of racial prejudice express greater opposition to social welfare programmes and greater support for punitive or 'get tough' crime policies (for poverty, Iyengar 1991; Gilens 1996; Federico 2005; for crime, see Hurwitz and Peffley 1997; Valentino 1999; Gilliam and Iyengar 2000; Mendelberg 2001). We find that negative stereotypes of salient groups like those involving Latinos in the US and Middle Easterners in Canada and Britain are powerful drivers of policy views in each country. A general ethnocentrism may exist in all these places, but the specific national context is also relevant. These results, therefore, extend previous work showing that attitudes about Hispanics, not all immigrant groups, substantially drive immigration policy opinion in the US (e.g. Valentino, Brader, and Jardina 2013).

Notes

1. See http://www.theatlantic.com/politics/archive/2016/09/donald-trump-and-the-politics-of-fear/498116/.
2. As recently as 1965, immigration quotas based on ethnicity and national origin were the principal criteria for legal admission into the US, resulting in a virtually all-white immigrant population. The ending of quotas resulted in a dramatic shift in the nationality and ethnic profile of incoming immigrants; by 2010 Latin America and Asia accounted for nine of the top ten 'sending' regions (Camarota 2012).
3. See https://today.yougov.com/news/2015/11/24/americans-want-register-gun-owners-not-muslims/.
4. In the US, we searched *The New York Times* and *The Washington Post*, in the UK, we searched *The Guardian* and *The Times*, and in Canada, we searched *The Globe and Mail* and the *Toronto Star*. Exact search queries were Immigration OR Immigrant AND (Latino OR Hispanic OR Mexico OR Latin America) for Hispanics in the US (Immigration OR Immigrant) AND (South Asia OR India OR Pakistan OR Bangladesh OR Sri Lanka OR Afghanistan) AND NOT (Muslim OR Islam) for South Asians in the UK and Canada, and Immigration OR Immigrant AND (Middle East OR Muslim OR Islam OR Arab OR Algeria OR Bahrain OR Iraq OR Jordan OR Kuwait OR Lebanon OR Oman OR Qatar OR Saudi Arabia OR Syria OR United Arab Emirates OR Palestine) for Middle Easterners. All counts are unique articles.
5. According to the 2011 Census, Canada has 1,615,145 South Asian immigrants, but only 380,620 Middle Eastern immigrants.
6. For more information on sampling design and sample size, see the appendix.
7. Concretely, this means that we code the median category as non-applicable, i.e. 0. To be sure, we rerun all measurement models having coded the median category as applicable, i.e. 1, and find unchanged results.
8. See the appendix for sample details.
9. Note that all models are fitted independently to each population relying on the EM algorithm with fixed quadrature developed by Chalmers (2012).
10. See the appendix for details of the measurement models.
11. We refer to overall stereotype as the group-specific latent concept.
12. See the appendix for details about this model specification.
13. See the appendix for more details and summary statistics.
14. See the appendix, Equation (A1) for model specification. All model results do not change if we use the collapsed items instead to construct stereotype scores.

15. We use ability estimates from a graded response model applied to the standard resentment questions in the US and to slightly altered versions in Canada and the UK capturing beliefs about minorities. See the appendix for more details.
16. The countries include Iraq, Jordan, Syria, Turkey, Eqypt, Pakistan, Bangladesh, Iran, and Indonesia.
17. See the appendix for summary statistics and more detailed explanations for this variable.
18. While the model fit index of our preferred model can be directly compared to the alternative, two-dimensional model we specified, the comparison to the one-dimensional parsimonious model is more complicated due to the different structure of each model, although the BIC does penalise for models with a higher number of parameters. As a robustness check, we conducted a principal component analysis. We find that the first two principal components explain more than 50% of the variation in the data, more than the rest of the principal components combined, whereas the first principal component explains less than a third of the underling variance in the data. Combined with the comparisons of our fit statistics, we take this as sufficient evidence for the appropriateness of our preferred two-dimensional model over the parsimonious one-dimensional model. In addition, we conduct validity checks of our model, showing that our constructs have reasonable predictive and convergent validity, which we report in the Appendix.
19. The overall BIC of the preferred model is estimated at 89,370.79, while the overall BIC of the more parsimonious one-dimensional model is estimated at 90,099.69 and the overall BIC of the two-dimensional model assuming topic-specific stereotyping is estimated at 89,566.50. See also Raftery (1995) for a discussion on substantive interpretation of BIC comparisons. The BIC values here are based on the additive likelihood of fitting three independent models to three populations (the US, UK, Canada).
20. We use Equation (A1) to compute $\hat{x}_{i,j}$ relying on three distinctive sets of population-level parameters, and round the fitted values to the full integer.
21. For comparison, the more general one-dimensional model is only able to predict 76.2% of all responses correctly.
22. In 2010, $\sum \alpha_{\text{Hispanic}} - \sum \alpha_{\text{MiddleEastern}} = 3.2$, $\chi^2 = 102.44$, $p = 0.00$; in 2016 $\sum \alpha_{\text{Hispanic}} - \sum \alpha_{\text{MiddleEastern}} = -0.1$, $\chi^2 = 0.31$, $p = 0.58$. Higher values indicate more stereotyped responses. Positive values indicate more negative feelings towards the modal immigrant group, negative values indicate more negative feelings towards Middle Easterners.
23. In Canada, $\sum \alpha_{\text{South-Asians}} - \sum \alpha_{\text{MiddleEastern}} = -4.85$, $\chi^2 = 150.45$, $p=0.00$, and in the UK $\sum \alpha_{\text{South-Asians}} - \sum \alpha_{\text{MiddleEastern}} = -4.18$, $\chi^2 = 279.10$, $p=0.00$. Again, higher values indicate more stereotyped responses. Positive values indicate more negative feelings towards the modal group, negative values indicate more negative feelings towards Middle Easterners. Results are also supported by paired t-tests of raw row-means: in the US, $\mu_{\text{Hispanic}} - \mu_{\text{MiddleEastern}} = 0.05$, $t = 7.84$, $p = 0.00$; in the UK, $\mu_{\text{South-Asians}} - \mu_{\text{MiddleEastern}} = -0.09$, $t = -17.83$, $p = 0.00$; in Canada, $\mu_{\text{South-Asians}} - \mu_{\text{MiddleEastern}} = -0.12$, $t = -13.78$, $p = 0.00$. Higher values indicate more stereotyped responses. We repeat all analyses having coded the median category as a stereotyped response and find unchanged results.
24. $\sum \alpha_{\text{US}} - \sum \alpha_{\text{UK}} = 5.13$, $\chi^2 = 153.40$, $p = 0.00$ in the US–UK comparison and $\sum \alpha_{\text{US}} - \sum \alpha_{\text{CA}} = 8.42$, $\chi^2 = 200.80$, $p = 0.00$ in the US–Canada comparison.
25. $\sum \alpha_{\text{US}} - \sum \alpha_{\text{UK}} = -1.76$, $\chi^2 = 19.09$, $p = 0.00$.
26. $\sum \alpha_{\text{US}} - \sum \alpha_{\text{CA}} = 0.51$, $\chi^2 = 0.84$, $p = 0.36$. Reassuringly, most results are again supported by paired t-tests of raw row-means: For the US–UK comparison, $\mu_{\text{Hispanic}} - \mu_{\text{SouthAsian}} = 0.10$, $t = 12.57$, $p=0.00$ and $\mu_{\text{MiddleEastern}} - \mu_{\text{MiddleEastern}} = -0.03$, $t = -4.01$, $p=0.00$; for the US–CA comparison, $\mu_{\text{Hispanic}} - \mu_{\text{SouthAsian}} = 0.18$, $t = 18.85$, $p = 0.00$ and $\mu_{\text{MiddleEastern}} - \mu_{\text{MiddleEastern}} = 0.01$, $t = 1.31$, $p = 0.19$. Higher values indicate more stereotyped responses. We repeat all analyses having coded the median category as a stereotyped response and find unchanged results.
27. Although note that the empirical distribution of factor scores is not exactly standard-normal.

28. All results are reproduced using the binary items as supposed to the fully graded items used here to construct the stereotype scores.
29. Multicollinearity is a concern because our latent trait scores are heavily correlated by design, i.e. $r_{US} = 0.83$, $r_{UK} = 0.93$, $r_{CA} = 0.92$. However, the variation inflation factors for these variables are 3.45 for modal group stereotypes, and 3.38 for Middle Eastern stereotypes in the US, 7.41 for modal group stereotypes, and 7.39 for Middle Eastern stereotypes in the UK, and 6.61 for modal group stereotypes, and 6.65 for Middle Eastern stereotypes in the US. These fall within the acceptable range (e.g. Kennedy 1992).
30. We acknowledge that our measures of perceived economic threat could be stronger. For example, we do not have data on perceived net drain of newcomers on the economic resources and whether immigrants will lead to a weaker labour market position for natives; see, for example, Malhotra, Margalit, and Mo (2010).
31. US: the average discrimination parameter of traits associated with economic productivity is 1.09 for Hispanic stereotyping and 1.15 for Middle Eastern stereotyping; the average discrimination parameter of traits associated with cultural assimilation is 1.79 for Hispanic stereotyping and 1.56 for Middle Eastern stereotyping. UK: the average discrimination parameter for traits referencing economic productivity is 1.35 and 1.34 for South Asian and Middle Eastern stereotyping; the averages are 2.04 and 1.95, respectively, for traits relating to cultural assimilation. Canada: the average discrimination parameter for economic traits is 0.53 for South Asian stereotyping and 0.73 for Middle Eastern stereotyping; the averages for traits relating to cultural assimilation are 1.55 for South Asian stereotyping and 1.73 for Middle Eastern stereotyping.
32. Note that while the constraint is mathematically not required, it makes identification more robust (see Rivers 2003 for a thorough discussion on identifiability of IRT models).

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No potential conflict of interest was reported by the authors.

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Appendix

Samples

YouGov sample: YouGov is an international market research and polling firm that has pioneered the development of web-based panels as instruments for social scientific research (for an overview of online research panels, see Vavreck and Iyengar 2011). The company uses a matching methodology for delivering online samples that mirror target adult populations on key demographic attributes. In general terms, their approach mimics a random probability sample by taking as the population a large 'pool' (panel) of respondents who have agreed to participate in Internet surveys conducted by the survey organisation. To ensure that the respondents in the panel are as diverse as possible, they are recruited by multiple means, mostly through different forms of online advertising, but also by telephone-to-web and mail-to-web recruitment. The number of participants was 1000 in Canada, 2056 in the US, and 2748 in the UK.

Pollfish Sample: The Pollfish application is embedded in third-party mobile applications. The third-party applications display advertisements to users, and some of those contain a poll request. When a user clicks the request, the Pollfish application launches. In the US, Pollfish has 10 million monthly active registered users. Globally, the number of active users is greater than 300 million. Because Pollfish is an opt-in panel, we create weights by raking to the US marginals for race, education, gender, age, and party, taken from the US Census, and polling aggregator Huffington Post pollster, respectively, to address survey error.

Variables

Racial/Minority Resentment: In the US, we use the standard four items to construct a latent trait score of racial resentment. The question wording is given below.

(1) Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class.
(2) It's really a matter of some people not trying hard enough. If blacks would only try harder they could be just as well off as whites.
(3) Over the past few years, blacks have got less than they deserve.
(4) The Irish, Italians, Jews, Vietnamese, and other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favours.

For the other countries, we construct a related measure of minority resentment by using the following agree–disagree items:

(1) Minorities need to work their way up on their own without favoured treatment.
(2) Economic success is really a matter of individual effort; if minorities would only try harder they could be just as well off as white.
(3) Discrimination against minorities makes it difficult for them to succeed in COUNTRY.

In each country, we use the responses to fit a graded, or polytomous response model (Samejima 1969; Chalmers 2012). Polytomous item response model allows for a larger number of categories ($k>2$) and model the probability of scoring in category k as the probability of responding in (or above) this category minus the probability of responding in (or above) the next category $k+1$.

$$P(x_{ij} = k \mid z_i) = Pr(x_{ij} \geq k \mid \alpha_{jk}, \beta_j, z_i) - Pr(x_{ij} \geq k + 1 \mid \alpha_{j,k+1}, \beta_j, z_i),$$

$$Pr(x_{ij} \geq k \mid \alpha_{jk}, \beta_j, z_i) = \frac{1}{1 + e^{-(\alpha_{jk} + \beta_j * z_i)}},$$

$$Pr(x_{ij} \geq k + 1 \mid \alpha_{j,k+1}, \beta_j, z_i) = \frac{1}{1 + e^{-(\alpha_{j,k+1} + \beta_j * z_i)}} . \%$$

(A1)

where $P(x_{ij} = k)$ is the probability of individual i to fall in the kth response category for policy-preference question j, z_i is the standing of individual i on the latent trait dimension, α_{jk} denotes the question- and category-specific difficulty parameter, and β_j are the discrimination parameters. Conceptually, the difficulty parameters here represent the cut-off points in the cumulative probabilities scale; the value for difficulty parameter α_{jk} represents the average latent trait score for a 50% chance of assigning either a rating of $(k, k-1, ..., k - (k-1))$ or a rating of $(k+1, k+2, ..., p)$ to item j. Variables are four-point scales. We identify the model by constraining the distribution of the latent traits to standard-normal.

Policy Opposition: We estimate country-specific versions of the graded response model specified in the appendix (Equation (A1)) to construct a latent trait score, using the following agree–disagree items:

(1) Our laws make it too difficult for foreign nationals to acquire NATIONALITY citizenship.
(2) Right now, COUNTRY is taking in too many immigrants.
(3) On the whole, the increasing cultural diversity in COUNTRY due to immigration has been good for the country.
(4) Generally speaking, immigrants have a very favourable effect on the country.
(5) One of the reasons immigrants come to COUNTRY is to take advantage of welfare benefits and public services. [Agree strongly, agree, disagree, disagree strongly, and cannot say]

We identify the model by constraining the distribution of the latent traits to standard-normal.

Female: 0 = Male; 1 = Female
US: $\mu = 0.49, \sigma = 0.50$; UK:$\mu = 0.52, \sigma = 0.50$; CA:$\mu = 0.51, \sigma = 0.50$

Age: 1 = birth-year after 1980; 2=birth-year 1960–1980 ; 3=birth-year 1940–1960 ; 4= birth-year before 1940
US: $\mu = 2.57, \sigma = 0.85$; UK:$\mu = 2.36, \sigma = 0.78$; CA:$\mu = 2.40, \sigma = 0.90$

Education: 1 = High School or lower; 2=Trade School; 3 = College
US: $\mu = 1.93, \sigma = 0.81$; UK:$\mu = 2.05, \sigma = 0.85$; CA:$\mu = 1.79, \sigma = 0.75$

Left: 0=does not apply; 1=Applies (identifies as Democrat in the US, Labour or Green Party in the UK, New Democratic Party, The Green Party, or Bloc Quebecois in Canada)
US: $\mu = 0.31, \sigma = 0.46$; UK:$\mu = 0.27, \sigma = 0.44$; CA:$\mu = 0.23, \sigma = 0.42$

Right: 0=does not apply; 1=Applies (identifies as Republican in the US, Conservative in the UK, Conservative Party in Canada)
US: $\mu = 0.28, \sigma = 0.45$; UK:$\mu = 0.27, \sigma = 0.45$; CA:$\mu = 0.28, \sigma = 0.45$

Income: 1 = \$0 − 30,000; 2 =\$30–80,000; 3=80 − 110,000; 4 = \$110,000+
US: $\mu = 2.28, \sigma = 0.90$; UK:$\mu = 1.92, \sigma = 0.76$; CA:$\mu = 2.43, \sigma = 1.19$

Black: 0=Does not apply; 1=applies
US: $\mu = 0.09, \sigma = 0.28$; UK:$\mu = 0.01, \sigma = 0.10$; CA:$\mu = 0.01, \sigma = 0.11$

Modal outgroup: 0=Does not apply; 1=applies
US: $\mu = 0.08, \sigma = 0.28$; UK:$\mu = 0.02, \sigma = 0.15$; CA:$\mu = 0.06, \sigma = 0.24$

zip-code-level % Hispanics:
US: $\mu = 13.50, \sigma = 16.86$

zip-code-level % born in Muslim countries:
US: $\mu = 0.00, \sigma = 0.01$

Measurement models

Our preferred model relies on a two-dimensional 2PL base model specified in Equation (A2):

$$P(x_{i,j} = 1 \mid z_{1,i}, z_{2,i}, \beta_{1,j}, \beta_{2,j}, \alpha_j) = \frac{1}{1 + e^{-(\alpha_j + \beta_{1,i}*z_{1,i} + \beta_{2,j}*z_{2,i})}} \tag{A2}$$

where i denotes individuals, j denotes items, $P(x_{i,j} = 1)$ is the probability of a 'correct' (i.e. stereotyped) response of individual i to item j, $z_{k,i}$ is the individual unobservable latent trait or ability for dimension k, $\beta_{k,j}$ are the slope or discrimination parameters for dimension k and α_j are the intercepts.

To obtain group-specific latent traits, we constrain all discrimination parameters of items capturing stereotyping against the modal immigrant group to be zero for dimension 1 (i.e. $\beta_{j,1} = 0$), and all discrimination parameters of items capturing stereotyping against Middle Easterners to be zero for dimension 2 (i.e. $\beta_{j,2} = 0$) in order to obtain separate discrimination parameters for Middle Eastern stereotyping (i.e. parameters related to dimension 1 of our model) and stereotyping of the modal immigrant group (i.e. parameters related to dimension 2 of our model). In addition, we allow for the latent traits of the two dimensions to be correlated. This model allows us to assess importance of certain traits to the underlying stereotype. A more relevant item produces a higher 'slope' in the logistic curve expressing the probability of a stereotypic response (Item Characteristic Curve, or ICC). In other words, the higher the discrimination parameter of a given item and the steeper the slope of its ICC, the more variance in the item can be explained by the latent trait, and hence the more the item contributes to the latent trait. For example, the more positive slope for the 'religious fanaticism' item in the Middle Eastern model (see Figure A1 below) means that perceptions of religious fanaticism drive Middle Eastern stereotyping more than Hispanic stereotyping.

For the alternative two-dimensional model that posits separate stereotypes concerning the cultural and economic attributes of immigrants, we constrain all discrimination parameters of items capturing cultural assimilation (i.e. willingness to learn English, eagerness to assimilate, insistence on special privileges, religious fanaticism, and lawfulness) to be zero for dimension 1 (i.e. $\beta_{j,1} = 0$), and all discrimination parameters of items capturing economic self-sufficiency (i.e. laziness and
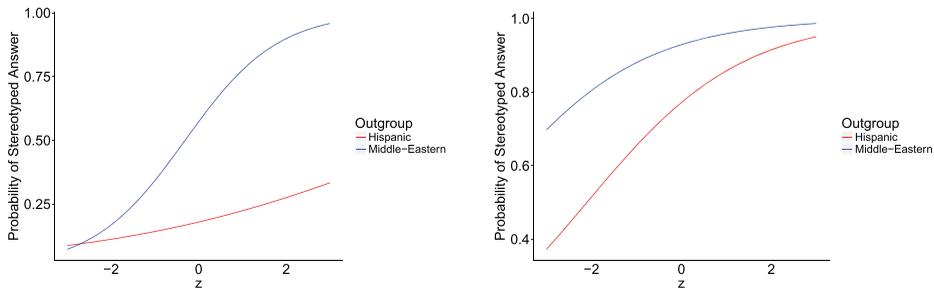

Figure A1. ICC for 'Perceptions of Religious Fanaticism Item' in the US without further constraints (left) and with constraints making intercept-comparisons possible (right).

ability to help the host nation make technological and scientific advances) to be zero for dimension 2 (i.e. $\beta_{j,2} = 0$). This allows us to obtain separate discrimination parameters for stereotyping of economic and cultural attributes. Again, we allow for the latent traits of the two dimensions to be correlated. For the more parsimonious alternative model, i.e. a model with one generic stereotype applicable to all immigrants, we fit a one-dimensional IRT model as specified in Equation (A3). If not otherwise noted, latent trait scores for all models and all dimensions k are constrained to be distributed standard-normal to aid identification, i.e. $z_{k,i} \sim N(0,1)$.[32]

$$P(x_{i,j} = 1 \mid z_i, \beta_j, \alpha_j) = \frac{1}{1 + e^{-(\alpha_j + \beta_j * z_i)}} \tag{A3}$$

where i denotes individuals, j denotes items, $P(x_{i,j} = 1)$ is the probability of a 'correct' (i.e. stereotyped) response of individual i to item j, z_i is the individual unobservable latent trait or ability, β_j are the slope or discrimination parameters and α_j are the intercepts.

Validity checks of measurement models

To assess the predictive validity of our measure of group stereotypes, we create an indicator of willingness to admit individual immigrants representing the two groups under consideration. Respondents indicated their willingness to grant a Middle Eastern or South Asian/Hispanic immigrant a temporary work permit and to award him citizenship at the conclusion of the work permit (in each case coded 1 if respondents are willing to admit the individual in question and 0 if respondents deny admission). We then use the group-specific stereotype scores to predict willingness to admit group members. Reassuringly, the average Nagelkerke R^2, our proxy for explained variation in the binary outcome variable, for the consistent models (i.e. where the modal group stereotype predicts willingness to admit a member of the modal group and the Middle-Eastern stereotype predicts willingness to admit a Middle Easterner) is 0.43, compared to 0.39 for the inconsistent models (i.e. where the stereotype does not apply to the target individual).

To test the convergent validity of our measurement model, we correlate the resulting latent scores with simple row-means. All correlations are well above .75, thus lending further credibility to our estimates.

Overall and trait-specific valence within and across countries

To assess trait-specific negativity within countries, we impose further constraints on the model. Were we to estimate discrimination parameters freely, inference as to what outgroup is worse off on any given trait depends on the value of the latent scores, or on the location on the Item Characteristic Curve (see Figure A1). To make intercept-comparisons meaningful, we have to fix the slope of the relevant Item Characteristic Curves. Specifically, we constrain all slopes $\beta_{k,j}$ to be equal for the items capturing the same trait across immigrant groups. For example, in the US model, the discrimination parameter of the Hispanic religious fanaticism item will be set equal to the parameter of the Middle Eastern religious fanaticism item, and so on for each of the traits. As a result, we obtain seven independent discrimination parameters in each country. Substantively, we construct our intercepts α_j in a way that allows for a direct, trait-specific comparison across groups. Furthermore, we estimate the latent trait parameters under the loosest restrictions possible that still allows comparability of α_j, namely that each trait contributes equally to both group stereotypes in this specification.

Note that in this specification α_j can be directly compared to the intercept of a simple linear probability model, i.e. the higher the value of α_j, the more negative the trait in question is rated,

Table A1. Correlations for latent scores and simple row-means describing stereotyping.

	US		UK		Canada	
Latent scores	Hispanics	Middle easterners	South Asians	Middle easterners	South Asians	Middle easterners
Row-means	0.93	0.94	0.95	0.96	0.75	0.94

conditional on the latent trait. In essence, the difference in probability of a stereotyped answer of the mean respondent for a given Middle Eastern trait and a given Hispanic trait in the US can be directly modelled as $1/(1 + e^{-\alpha_{\text{MiddleEastern},j}}) - 1/(1 + e^{-\alpha_{\text{hispanic},j}})$, or over the full distributional range of $z_{k,i}$ as $1/(1 + e^{-(\alpha_{\text{MiddleEastern},j}+k)}) - 1/(1 + e^{-(\alpha_{\text{hispanic},j}+k)})$ where k is a constant vector, i.e. $k = \beta_{\text{hispanic},j} * z_{\text{hispanic},i} = \beta_{\text{MiddleEastern},j} * z_{\text{MiddleEastern},i}$ because of distributional constraints on the latent scores and equality constraints on the discrimination parameters. We show an illustrative comparison over the full distributional range of $z_{k,i}$ for religious fanaticism directed at Hispanics and Middle Easterners in the US in Figure A1. Note that this approach can only be used to compare the evaluative direction of *the same trait across groups within populations*.

In order to examine which of the two immigrant groups has the more overall negative standing within each country, we again make use of our constrained models derived from Equation (A2). We can then use the constrained model that allows for direct comparison of intercepts, simply take the difference in the sum of the intercepts for each immigrant group and test the significance of this difference through Wald tests. If, for instance, the sum of the intercepts representing the ratings of Hispanics is larger than the corresponding sum of Middle Easterner intercepts, we can conclude that Americans view Hispanics more harshly than Middle Easterners.

To assess trait-specific negativity *across* countries, we again use the parametrisation of Equation (A2), this time constraining slopes $\beta_{k,j}$ for each item j to be equal *across countries*, but *not across immigrant groups*. Specifically, the discrimination parameter of the item capturing perceptions of religious fanaticism of Middle Easterners will be set equal across countries, but is allowed to vary from the discrimination parameter of the item capturing perceptions of religious fanaticism of Hispanics/South Asians, and so forth. The end result is 14 independent discrimination parameters constrained to be equal across countries, ensuring direct comparability of the intercepts by the same logic as above. Thus, if unwillingness to speak English as applied to Middle Easterners in the US has a larger intercept than unwillingness to speak English as applied to Middle Easterners in the UK, we conclude that Middle Easterners' standing on this trait in the US is lower than Middle Easterners' standing in the UK. Note that this approach can only be used to compare the *same trait rating for the same group, across populations*.

In order to examine which specific immigrant group has the most negative standing across countries, we can again use the constrained model that allows for direct comparison of intercepts to simply take the difference in the sum of the intercepts for each immigrant group and test the significance of this difference through Wald tests. If, for instance, the sum of the intercepts representing the ratings of Middle Easterners is larger in the UK than in the US or in Canada, we can conclude that Middle Easterners are worst off in the UK.