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#### Abstract

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#### Abstract

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## ABSTRACT

## Selecting Names for Experiments on Ethnic Discrimination

In recent decades, researchers have found compelling evidence of discrimination in the labor and housing market toward ethnic minorities based on field experiments using fictitious applications. However, these findings may be exaggerated as the names used for ethnic minorities in various experiments may have also signaled low socioeconomic class. Therefore, in this study, we perform a name categorization experiment in the United States that yields 56 names associated with six ethnicity groups, which signal different ethnicities and genders but similar social classes. These names should greatly improve the validity of future experiments on ethnic discrimination.

## JEL Classification: C91, C93, J71

Keywords: ethnic discrimination, social class, experiments

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## 1. Introduction

In recent decades, researchers have conducted dozens of experiments to measure ethnic discrimination. This has been done through field experiments with fictitious employment or housing applications in which the name of the candidate was randomized. A recent metaanalysis by Lippens et al. (2021) of 143 hiring experiments published between 2005 and 2020 shows that, in these experiments, members of ethnic minority groups worldwide received nearly one-third fewer positive responses to their applications on average than their majority counterparts.

However, Gaddis (2017a, 2017b, 2019) argues that this evidence might be biased as the names used to signal ethnicity in experimental studies are noisy signals. Indeed, in a study in which Amazon Mechanical Turk users had to evaluate whether American names belonged to Black or White individuals, Gaddis $(2017 a, 2019)$ found that the names used in many existing experimental studies are inadequate signals for race and gender because (i) they do not signal the race or gender intended, and (ii) they also signal characteristics other than race, such as social class (i.e., Black American names were often associated with being working class or low class, while White American names were more often associated with being middle class or high class).

These studies make clear that, in the future, ethnic discrimination experiments based on the randomization of names should better check the names used for any signals other than ethnicity that they may convey. Gaddis' $(2017 a, 2019)$ research is useful in this regard because it produces 'White' and 'Black' names that suggest the same social class. In this study, we run a complementary name experiment that broadens this toolbox in two ways. First, we identify valid names for six ethnic groups: White, Black, Hispanic, Arab, Asian and German Americans. ${ }^{1}$ Second, for each group, we distinguish between Anglo-sounding and 'ethnic'-sounding first names.

[^1]
## 2. Methods

The experiment consisted of a simple name categorization task run on Prolific Academic with 190 American users. Prolific Academic is an online crowdsourcing platform where researchers can recruit participants to perform tasks in exchange for financial compensation (Palan \& Schitter, 2018). Prolific is particularly attractive because it was specifically designed for researchers and has proven especially suitable for experiments in the social and economic sciences (Palan \& Schitter, 2018; Peer et al., 2017). Moreover, Prolific appears superior to other platforms, such as the widely used Amazon Mechanical Turk platform, in terms of data quality (Peer et al., 2017; Peer et al., 2021).

Before running the experiment, we selected 192 potential combinations of first and last names; that is, we selected 16 combinations for each of the 12 gender-ethnicity groups. The first names varied between being Anglo-sounding (e.g., Susan) and ethnic-sounding (e.g., Mei).

We first built a database with potentially suitable first names based on a systematic reading of the existing experimental literature on ethnic discrimination in hiring and housing and a thorough internet search for popular male and female first names within each of the six ethnicity groups. ${ }^{2}$ From this database, we chose first names that met two predefined criteria. First, they had to be common for people belonging to the target gender-ethnicity group. We used the website MyNameStats.com to confirm this. The website provides, among other statistics, an approximation of the percentage of people in the United States with a specific first name who belong to a particular ethnic group. ${ }^{3}$ Second, the names had to be popular between 1985 and 1990 to control for possible age signals. To this end, we ran all potential names through the official USA Social Security Administration database,

[^2]which records the number of people with a particular first name in a given year or decade and ranks these names by popularity (Social Security Association, 2021). Only names that were among the top 1,000 most popular names were considered for our experiment. In total, we selected 192 first names that met these two criteria (i.e., 16 for each of the 12 gender-ethnicity groups). We ensured that half of the selected first names were Anglosounding (e.g., Susan) and the other half were ethnic-sounding (e.g., Mei).

After selecting the first names, we needed 192 last names to pair with them. We used the 2010 U.S. Census database on frequently occurring surnames as a starting point (U.S. Census Bureau, 2021). The U.S. Census database provides an overview of the number of people with a particular last name in the United States by year and ranks these names by the frequency with which they occur. Moreover, the database provides information on the percentage of people belonging to a particular ethnicity group who carry a specific last name. Again, we defined two criteria that the last names had to meet. First, they had to be common in the United States (i.e., have a high rate of occurrence). Second, they had to be common among people belonging to the intended ethnicity group. For each of the different ethnicity groups, we selected the last names that were most commonly carried by that group and highfrequency in the 2010 census. ${ }^{4}$ Within ethnicity groups, we then paired the 192 last names with the selected first names.

In the experiment, we randomly assigned 25 out of the 192 possible name combinations to each of the 190 participants, resulting in a sample of 4,750 name evaluations (i.e., $190 \times 25$ ). Participants then had to sort these combinations of first and last names into various categories: (i) gender (male or female), (ii) ethnicity ${ }^{5}$ (White American, Black American, Hispanic or Latino American, Arab American, Asian American, German American or none of the above), (iii) social class (low class, working class, middle class or high class), (iv) immigrant generation (first-generation or foreign-born, second-generation or having at least one foreign-born parent, or third-or-higher generation or not an immigrant), (iv) religious affiliation (Christian, Jewish, Muslim, Hindu, Buddhist, atheist or none in particular) and

[^3]commonness (sounding common or uncommon). Participants could indicate only one option in each category for each name.

## 3. Results

Results of the name categorization experiment are displayed in Appendix Table A-2. Specifically, this table shows the percentages of participants who rated the 192 names as (i) the correct gender, (ii) the correct ethnicity, (iii) working or middle class, (iv) not being associated with foreign-born or first-generation migrant status, (v) being associated with Christianity, atheism or no particular religion and (vi) common.

Originally, we intended to select names that scored highly on each of these six facets. This proved impossible because, out of 32 Arabic names, only two were considered to be associated with Christianity, atheism or no particular religion by more than half of the respondents (due to high scores for Islam), which raised questions about their representativeness. This problem also occurred with Asian names using ethnic-sounding first names due to high scores for Buddhism; these names were also considered uncommon names by more than half of the participants. The latter is apparent in the correlation table in Appendix Table A-2. The more a name is perceived as being Asian or Arab, the less it is perceived as being associated with Christianity, atheism or no particular religion.

Because of these findings, we decided, as indicated in Section 1, to focus on the selection of names signaling the intended gender and ethnicity as well as middle or working class membership. The-albeit limited-correlation between the degree to which the names of ethnic minorities were correctly assigned to their race-ethnicity group and perceived social class further underlines the relevance of our exercise. Distinctly White American and Hispanic names were less likely to be assigned to the working and middle classes, while distinctly Black American and Asian male names were more likely to be assigned to these classes.

More concretely, we standardized the fractions of participants who (i) correctly assessed the name's ethnicity and (ii) evaluated it as working or middle class within each group
according to gender, ethnicity and Anglo-sounding versus ethnic-sounding first names after which we added up both standardized values. ${ }^{6}$ We then selected the names with the highest sums.

## <Table 1 about here.>

The results of our analysis are presented in Table 1. More concretely, we selected 16 White American names (eight for women and eight for men) and 40 ethnic minority names (four per gender-ethnicity group, with two each with an Anglo-sounding first name and two with an ethnic-sounding first name).

## 4. Conclusion

We performed a name categorization experiment in the United States that yielded 56 names for various ethnicity groups, which signal different ethnicities and genders but similar social classes. We complemented earlier research by (i) testing names corresponding to six distinct ethnicity groups instead of considering only White, Black or Hispanic names and (ii) identifying names with ethnic-sounding first names as well as names with Anglo-sounding first names. Our analyses indicate that there is a correlation between the degree to which a particular ethnicity is distinctly perceived and other socioeconomic perceptions. Our study reconfirms, therefore, that scholars should be very careful when selecting job and housing applicants' names as signals for gender and ethnicity because they could also signal other attributes. For this reason, we urge researchers to use and further validate the names provided in this study in their experiments or conduct additional name categorizing experiments when conducting future experimental research on ethnic discrimination.

[^4]
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Table 1. Names signaling intended gender and ethnicity as well as being middle or working class

| Associated ethnicity of names | Associated gender of names |  |
| :---: | :---: | :---: |
|  | Female | Male |
| White American names | Sharon Wood | Gregory Roberts |
|  | Molly Rose | Matthew Owen |
|  | Katie Burns | Neil Morrison |
|  | Megan Stone | Chad Nichols |
|  | Cara O'Connor | Paul Bennett |
|  | Allison Baker | Peter Hughes |
|  | Brooke Bishop | Brad Richards |
|  | Meredith Rogers | Jeffrey Cox |
| Black American with an Anglo-sounding first name | Natasha Diggs | Marcus McCray |
|  | Monique Rivers | Andre Mosley |
| Black American with an ethnic-sounding first name | Tyra Cooks | Jermaine Jackson |
|  | Tamika Battle | Darius Mosby |
| Hispanic names with an Anglo-sounding first name | Vanessa Rodriguez | Jesse Ortiz |
|  | Laura Ramirez | Adrian Ramos |
| Hispanic names with an ethnic-sounding first name | Maria Garcia | Miguel Fernandez and |
|  | Alejandra Rivera | Alejandro Vasquez |
| Asian names with an Anglo-sounding first name | Susan Wong | Harry Wu |
|  | Vivian Cheng | David Kobayashi |
| Asian names with an ethnic-sounding first name | Suni Tran | Pheng Chan |
|  | Meiling Huang | Fong Chang |
| Arab names with an Anglo-sounding first name | Diana Shadid | Adam Salah |
|  | Sara Alharbi | Sam Hamad |
| Arab names with an ethnic-sounding first name | Samira Mohammed | Abdullah Malik |
|  | Amira Fouad | Hassan Alsheikh |
| German names with an Anglo-sounding first name | Erika Schmidt | Kristopher Weiss |
|  | Veronica Klein | Ralph Schumacher |
| German names with an ethnic-sounding first name | Heidi Schultz | Hans Schubert |
|  | Martha Krueger | Kurt Schroeder |

## Appendix A

Table A-1. Results of the name categorization experiment

| Name | Evaluated as... |  |  |  |  |  | Selected |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Intended gender | Intended ethnicity | Working or middle class | Not being a firstgeneration migrant | Being Christian, atheist or having no particular religion | Common name |  |
| A. Names intended to be seen as belonging to White American women |  |  |  |  |  |  |  |
| Sarah Miller | 91.7\% | 83.3\% | 87.5\% | 91.7\% | 100.0\% | 84.6\% |  |
| Kristen Pierce | 96.2\% | 88.5\% | 88.5\% | 96.2\% | 88.0\% | 76.9\% |  |
| Sharon Wood | 92.3\% | 88.5\% | 92.3\% | 92.3\% | 96.0\% | 70.8\% | Yes |
| Molly Rose | 100.0\% | 100.0\% | 81.5\% | 100.0\% | 96.3\% | 76.7\% | Yes |
| Kate Murphy | 100.0\% | 87.5\% | 75.0\% | 95.8\% | 100.0\% | 84.2\% |  |
| Emily Hart | 100\% | 88.9\% | 88.9\% | 96.3\% | 100.0\% | 85.6\% |  |
| Katie Burns | 96.3\% | 96.3\% | 85.2\% | 100.0\% | 95.8\% | 84.4\% | Yes |
| Caitlin Fox | 96.0\% | 88.0\% | 84.0\% | 100.0\% | 96.2\% | 75.2\% |  |
| Karen Stevens | 92.6\% | 88.9\% | 81.5\% | 100.0\% | 96.2\% | 83.7\% |  |
| Megan Stone | 100.0\% | 87.5\% | 91.7\% | 100.0\% | 96.2\% | 83.3\% | Yes |
| Lauren Reynolds | 96.0\% | 88.0\% | 80.0\% | 96.0\% | 96.3\% | 80.8\% |  |
| Cara O'Connor | 96.0\% | 100.0\% | 88.0\% | 100.0\% | 96.4\% | 68.0\% | Yes |
| Heather Mills | 95.8\% | 95.8\% | 79.2\% | 95.8\% | 96.3\% | 78.7\% |  |
| Allison Baker | 96.2\% | 92.3\% | 96.2\% | 100.0\% | 92.6\% | 86.1\% | Yes |
| Brooke Bishop | 96.2\% | 88.5\% | 92.3\% | 100.0\% | 96.3\% | 74.6\% | Yes |
| Meredith Rogers | 100.0\% | 96.2\% | 80.8\% | 96.2\% | 88.5\% | 71.5\% | Yes |
| B. Names intended to be seen as belonging to White American men |  |  |  |  |  |  |  |
| Gregory Roberts | 100.0\% | 96.0\% | 84.0\% | 100.0\% | 100.0\% | 77.2\% | Yes |
| Scott Sullivan | 100.0\% | 92.6\% | 81.5\% | 92.6\% | 96.4\% | 75.9\% |  |
| Matthew Owen | 100.0\% | 88.5\% | 92.3\% | 100.0\% | 96.3\% | 85.0\% | Yes |
| Neil Morrison | 100.0\% | 87.0\% | 95.7\% | 100.0\% | 88.5\% | 70.0\% | Yes |
| Thomas Kennedy | 100.0\% | 96.2\% | 61.5\% | 100.0\% | 85.2\% | 87.7\% |  |
| Luke Kelly | 100.0\% | 96.0\% | 76.0\% | 96.0\% | 96.3\% | 72.8\% |  |
| Chad Nichols | 100.0\% | 91.3\% | 87.0\% | 95.7\% | 100.0\% | 73.0\% | Yes |
| Jake Ryan | 92.0\% | 96.0\% | 76.0\% | 100.0\% | 103.0\% | 92.0\% |  |
| Seth O'Brien | 100.0\% | 80.8\% | 80.8\% | 100.0\% | 83.3\% | 71.9\% |  |
| William Dunn | 100.0\% | 92.3\% | 73.1\% | 100.0\% | 100.0\% | 82.3\% |  |
| Paul Bennett | 100.0\% | 96.0\% | 96.0\% | 100.0\% | 96.2\% | 76.0\% | Yes |
| Steven Russell | 100.0\% | 87.0\% | 91.3\% | 100.0\% | 85.7\% | 76.1\% |  |
| Peter Hughes | 100.0\% | 100.0\% | 80.0\% | 100.0\% | 95.8\% | 84.0\% | Yes |
| Gary Walsh | 100.0\% | 96.2\% | 76.9\% | 88.5\% | 91.7\% | 71.9\% |  |
| Brad Richards | 96.2\% | 96.2\% | 76.9\% | 100.0\% | 100.0\% | 87.7\% | Yes |
| Jeffrey Cox | 100.0\% | 96.0\% | 96.0\% | 92.0\% | 92.9\% | 84.4\% | Yes |
| C. Names intended to be seen as belonging to Black American women |  |  |  |  |  |  |  |
| C.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Natasha Diggs | 100.0\% | 65.2\% | 95.7\% | 95.7\% | 91,9\% | 59.6\% | Yes |
| Madison Bolden | 95.8\% | 0.0\% | 95.8\% | 95.8\% | 100.0\% | 68.7\% |  |
| Ava Smalls | 92.0\% | 12.0\% | 88.0\% | 92.0\% | 85.2\% | 72.0\% |  |
| Courtney Bowens | 100.0\% | 22.7\% | 81.8\% | 100.0\% | 96.2\% | 81.4\% |  |
| Michelle Jefferson | 91.7\% | 37.5\% | 100.0\% | 100.0\% | 100.0\% | 81.7\% |  |
| Kiara Charles | 92.6\% | 51.9\% | 85.2\% | 100.0\% | 92.0\% | 60.7\% |  |
| Brenda Alston | 100.0\% | 11.5\% | 92.3\% | 96.2\% | 88.5\% | 69.6\% |  |
| Monique Rivers | 88.0\% | 80.0\% | 100.0\% | 100.0\% | 88.9\% | 64.4\% | Yes |
| C.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Janae Washington | 95.8\% | 83.3\% | 91.7\% | 100.0\% | 92.9\% | 56.2\% |  |
| Jalisa Mack | 95.8\% | 54.2\% | 87.5\% | 100.0\% | 80.8\% | 39.2\% |  |


| Jada Chatman | $85.2 \%$ | $33.3 \%$ | $92.6 \%$ | $96.3 \%$ | $85.2 \%$ | $48.9 \%$ |  | Yes |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Tyra Cooks | $100.0 \%$ | $84.6 \%$ | $92.3 \%$ | $96.2 \%$ | $100.0 \%$ | $67.3 \%$ |  |  |
| Savannah Booker | $96.2 \%$ | $42.3 \%$ | $92.3 \%$ | $96.2 \%$ | $92.0 \%$ | $72.3 \%$ |  |  |
| Tamika Battle | $88.5 \%$ | $76.9 \%$ | $100.0 \%$ | $96.2 \%$ | $100.0 \%$ | $54.2 \%$ | Yes |  |
| Symone Joseph | $83.3 \%$ | $58.3 \%$ | $95.8 \%$ | $91.7 \%$ | $81.5 \%$ | $47.1 \%$ |  |  |
| Keisha Towns | $92.6 \%$ | $85.2 \%$ | $88.9 \%$ | $96.3 \%$ | $91.9 \%$ | $60.7 \%$ |  |  |


| D. Names intended to be seen as belonging to Black American men |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| D.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Trevor Dorsey | 100.0\% | 41.7\% | 95.8\% | 100.0\% | 94.3\% | 72.5\% |  |
| Curtis Cobbs | 100.0\% | 24.0\% | 88.0\% | 96.0\% | 100.0\% | 67.2\% |  |
| Charles Williams | 100.0\% | 12.5\% | 83.3\% | 100.0\% | 92.0\% | 92.1\% |  |
| James Samuels | 100.0\% | 46.2\% | 84.6\% | 96.2\% | 96.2\% | 79.2\% |  |
| Samuel Banks | 100.0\% | 30.8\% | 65.4\% | 96.2\% | 82.1\% | 80.4\% |  |
| Marcus McCray | 100.0\% | 46.2\% | 96.2\% | 100.0\% | 96.2\% | 70.4\% | Yes |
| Miles Winston | 96.2\% | 42.3\% | 80.8\% | 100.0\% | 91.7\% | 63.1\% |  |
| Andre Mosley | 100.0\% | 54.2\% | 87.5\% | 95.8\% | 93.7\% | 65.1\% | Yes |
| D.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Denzel Gaines | 100.0\% | 87.5\% | 87.5\% | 95.8\% | 96.0\% | 53.7\% |  |
| Corey Myles | 96.0\% | 12.0\% | 92.0\% | 100.0\% | 96.3\% | 69.2\% |  |
| Darius Drayton | 100.0\% | 74.1\% | 85.2\% | 92.6\% | 94.3\% | 50.0\% |  |
| Terell Mosby | 96.3\% | 63.0\% | 85.2\% | 96.3\% | 94.3\% | 47.8\% |  |
| Darnell Dawkins | 100.0\% | 72.0\% | 92.0\% | 96.0\% | 88.9\% | 59.2\% |  |
| Jermaine Jackson | 85.2\% | 88.9\% | 92.6\% | 96.3\% | 100.0\% | 67.4\% | Yes |
| Darius Mosby | 96.3\% | 81.5\% | 100.0\% | 96.3\% | 92.6\% | 44.8\% | Yes |
| Terell Edmond | 100.0\% | 69.6\% | 87.0\% | 95.7\% | 91.3\% | 48.7\% |  |


| E. Names intended to be seen as belonging to Hispanic women |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Abigail Castillo | 92.6\% | 77.8\% | 100.0\% | 92.6\% | 95.8\% | 56.3\% |  |
| Vanessa Rodriguez | 96.2\% | 96.2\% | 100.0\% | 100.0\% | 96.3\% | 71.1\% | Yes |
| Laura Ramirez | 100.0\% | 91.7\% | 100.0\% | 95.8\% | 96.0\% | 71.7\% | Yes |
| Eva Mendoza | 100.0\% | 88.0\% | 92.0\% | 100.0\% | 96.3\% | 62.8\% |  |
| Alexis Perez | 75.0\% | 87.5\% | 91.7\% | 100.0\% | 96.2\% | 64.6\% |  |
| Victoria Diaz | 100.0\% | 88.9\% | 100.0\% | 96.3\% | 100.0\% | 72.6\% |  |
| Olivia Torres | 88.9\% | 77.8\% | 100.0\% | 100.0\% | 96.3\% | 64.8\% |  |
| Alicia Sanchez | 100.0\% | 92.3\% | 92.3\% | 96.2\% | 88.0\% | 65.8\% |  |
| E.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Maria Garcia | 96.3\% | 96.3\% | 88.9\% | 96.3\% | 92.0\% | 82.2\% | Yes |
| Gabriela Lopez | 100.0\% | 92.3\% | 84.6\% | 92.3\% | 100.0\% | 72.7\% |  |
| Raquel Jimenez | 32.0\% | 84.0\% | 76.0\% | 84.0\% | 88.5\% | 48.4\% |  |
| Alejandra Rivera | 83.3\% | 100.0\% | 83.3\% | 79.2\% | 92.6\% | 52.1\% | Yes |
| Sofia Aguilar | 100.0\% | 80.0\% | 92.0\% | 92.0\% | 92.0\% | 56.4\% |  |
| Luisa Gomez | 100.0\% | 95.8\% | 70.8\% | 70.8\% | 92.6\% | 55.8\% |  |
| Marisol Cruz | 89.3\% | 92.9\% | 92.9\% | 89.3\% | 100.0\% | 50.4\% |  |
| Rosa Martinez | 95.8\% | 87.5\% | 100.0\% | 87.5\% | 96.1\% | 57.9\% |  |


| F. Names intended to be seen as belonging to Hispanic men |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Daniel Morales | 96.4\% | 75.0\% | 85.7\% | 100.0\% | 92.6\% | 73.9\% |  |
| Christian Hernandez | 100.0\% | 92.3\% | 88.5\% | 92.3\% | 100.0\% | 70.0\% |  |
| Jesse Ortiz | 79.2\% | 87.5\% | 100.0\% | 100.0\% | 92.0\% | 69.6\% | Yes |
| Joe Alvarez | 100.0\% | 91.3\% | 82.6\% | 100.0\% | 88.5\% | 62.2\% |  |
| Alex Chavez | 83.3\% | 83.3\% | 87.5\% | 100.0\% | 96.4\% | 64.6\% |  |
| Adrian Ramos | 90.9\% | 90.9\% | 100.0\% | 86.4\% | 80.0\% | 54.5\% | Yes |
| Lucas Ruiz | 100.0\% | 88.5\% | 92.3\% | 96.2\% | 87.5\% | 52.7\% |  |
| Joel Flores | 88.5\% | 76.9\% | 96.2\% | 76.9\% | 89.3\% | 67.7\% |  |
| F.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Hector Silva | 96.0\% | 80.0\% | 100.0\% | 96.0\% | 84.6\% | 59.2\% |  |
| Miguel Fernandez | 100.0\% | 100.0\% | 95.8\% | 91.7\% | 100.0\% | 67.1\% | Yes |
| José Gonzalez | 95.7\% | 95.7\% | 82.6\% | 56.5\% | 96.3\% | 71.7\% |  |
| Alejandro Vasquez | 88.9\% | 92.6\% | 96.3\% | 77.8\% | 92.6\% | 56.7\% | Yes |
| Rodrigo Romero | 95.8\% | 91.7\% | 87.5\% | 87.5\% | 92.6\% | 47.5\% |  |


| Pedro Moreno | 96.2\% | 96.2\% | 84.6\% | 69.2\% | 92.3\% | 55.0\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Juan Herrera | 100.0\% | 100.0\% | 87.5\% | 66.7\% | 92.3\% | 62.1\% |  |
| Luis Reyes | 96.4\% | 82.1\% | 92.9\% | 92.9\% | 92.9\% | 63.2\% |  |
| G. Names intended to be seen as belonging to Asian women |  |  |  |  |  |  |  |
| G.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Susan Wong | 96.2\% | 92.3\% | 96.2\% | 88.5\% | 57.1\% | 75.0\% | Yes |
| Vivian Cheng | 96.2\% | 96.2\% | 92.3\% | 92.3\% | 46.2\% | 57.7\% | Yes |
| Christina Wang | 100.0\% | 96.2\% | 84.6\% | 96.2\% | 40.0\% | 72.7\% |  |
| Grace Li | 100.0\% | 96.2\% | 76.9\% | 100.0\% | 29.2\% | 66.1\% |  |
| Alice Watanabe | 95.5\% | 68.2\% | 90.9\% | 90.9\% | 73.1\% | 56.4\% |  |
| Jennifer Matsumoto | 96.0\% | 88.0\% | 96.0\% | 96.0\% | 64.0\% | 50.0\% |  |
| Chloe Kimura | 92.6\% | 74.1\% | 81.5\% | 96.3\% | 64.3\% | 53.3\% |  |
| Amy Saito | 90.9\% | 72.7\% | 95.5\% | 95.5\% | 59.3\% | 62.3\% |  |
| G.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Mei Lin | 96.0\% | 96.0\% | 92.0\% | 56.0\% | 24.0\% | 36.8\% |  |
| Suni Tran | 88.0\% | 96.0\% | 100.0\% | 84.0\% | 36.0\% | 32.0\% | Yes |
| Meiling Huang | 89.3\% | 100.0\% | 92.9\% | 50.0\% | 23.1\% | 31.1\% | Yes |
| Xia Zhang | 80.0\% | 96.0\% | 100.0\% | 52.0\% | 16.0\% | 25.2\% |  |
| Kimiko Takahashi | 76.0\% | 92.0\% | 88.0\% | 64.0\% | 44.4\% | 26.4\% |  |
| Sakura Nakamura | 80.0\% | 88.0\% | 80.0\% | 44.0\% | 38.5\% | 26.0\% |  |
| Yumi Oshiro | 92.3\% | 96.2\% | 96.2\% | 53.9\% | 28.0\% | 29.6\% |  |
| Misa Yamamoto | 96.3\% | 92.6\% | 74.1\% | 66.7\% | 29.6\% | 24.8\% |  |
| H. Names intended to be seen as belonging to Asian men |  |  |  |  |  |  |  |
| H.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Jason Nguyen | 100.0\% | 84.0\% | 92.0\% | 96.0\% | 36.0\% | 64.0\% |  |
| Harry Wu | 95.8\% | 91.7\% | 91.7\% | 100.0\% | 33.3\% | 67.1\% | Yes |
| Henry Kim | 96.0\% | 84.0\% | 88.0\% | 100.0\% | 63.0\% | 68.0\% |  |
| George Yang | 100.0\% | 96.0\% | 84.0\% | 92.0\% | 63.0\% | 74.0\% |  |
| David Kobayashi | 100.0\% | 84.6\% | 96.2\% | 100.0\% | 48.2\% | 50.0\% | Yes |
| Eric Hayashi | 100.0\% | 83.3\% | 91.7\% | 100.0\% | 38.5\% | 44.2\% |  |
| Andrew Tanaka | 95.8\% | 79.2\% | 90.5\% | 95.8\% | 46.2\% | 63.7\% |  |
| Simon Sato | 96.0\% | 52.0\% | 76.0\% | 100.0\% | 50.0\% | 49.6\% |  |
| H.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Chong Liu | 71.4\% | 100.0\% | 92.9\% | 57.1\% | 30.8\% | 34.3\% |  |
| Xiong Pham | 75.0\% | 96.4\% | 89.3\% | 42.9\% | 28.0\% | 23.2\% |  |
| Pheng Chan | 85.2\% | 100.0\% | 100.0\% | 51.9\% | 40.7\% | 27.4\% | Yes |
| Fong Chang | 76.9\% | 100.0\% | 96.2\% | 46.2\% | 34.7\% | 35.0\% | Yes |
| Matoko Suzuki | 76.0\% | 96.0\% | 84.0\% | 40.0\% | 29.2\% | 20.0\% |  |
| Hiroki Ito | 81.5\% | 96.3\% | 81.5\% | 33.3\% | 40.0\% | 45.6\% |  |
| Neiko Sasaki | 45.8\% | 79.2\% | 95.8\% | 70.8\% | 32.1\% | 30.8\% |  |
| Kenji Yoshida | 92.6\% | 85.2\% | 96.3\% | 63.0\% | 48.0\% | 33.3\% |  |


| I. Names intended to be seen as belonging to Arab women |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| I.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Dina Bashir | 96.0\% | 72.0\% | 92.0\% | 92.0\% | 26.9\% | 41.2\% |  |
| Nora Ahmad | 100.0\% | 88.9\% | 85.2\% | 100.0\% | 14.8\% | 40.0\% |  |
| Hannah Alzahrani | 100.0\% | 88.5\% | 88.5\% | 96.2\% | 24.0\% | 55.4\% |  |
| Amber Hashim | 92.0\% | 68.0\% | 84.0\% | 92.0\% | 7.4\% | 56.4\% |  |
| Nina Mansour | 95.8\% | 29.2\% | 83.3\% | 95.8\% | 74.1\% | 45.8\% |  |
| Diana Shadid | 100.0\% | 92.6\% | 96.3\% | 92.6\% | 30.8\% | 48.5\% | Yes |
| Jenna Hussain | 95.8\% | 66.7\% | 83.3\% | 95.8\% | 29.6\% | 42.5\% |  |
| Sara Alharbi | 91.7\% | 83.3\% | 95.8\% | 95.8\% | 22.2\% | 50.0\% | Yes |
| I.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Leila Kahn | 95.8\% | 25.0\% | 95.8\% | 100.0\% | 56.0\% | 48.7\% |  |
| Nadia Khalil | 92.6\% | 59.3\% | 92.6\% | 96.3\% | 7.7\% | 45.6\% |  |
| Fatima Siddiqui | 92.9\% | 71.4\% | 89.3\% | 71.4\% | 7.7\% | 26.4\% |  |
| Samira Mohammed | 100.0\% | 84.0\% | 96.0\% | 88.0\% | 8.0\% | 39.6\% | Yes |
| Farrah Kumar | 73.1\% | 73.1\% | 80.8\% | 76.9\% | 10.7\% | 30.4\% |  |
| Amira Fouad | 96.2\% | 73.1\% | 96.2\% | 88.5\% | 19.2\% | 28.8\% | Yes |
| Maryam Alamri | 100.0\% | 76.9\% | 84.6\% | 92.3\% | 11.5\% | 35.8\% |  |
| Zahra Hassan | 92.0\% | 80.0\% | 92.0\% | 72.0\% | 23.4\% | 32.4\% |  |


| J. Names intended to be seen as belonging to Arab men |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| J.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Michael Abdullah | 95.7\% | 78.3\% | 95.7\% | 87.0\% | 14.8\% | 47.0\% |  |
| John Khalifa | 100.0\% | 40.7\% | 81.5\% | 100.0\% | 55.6\% | 58.1\% |  |
| Adam Salah | 100.0\% | 80.8\% | 100.0\% | 100.0\% | 22.2\% | 47.7\% | Yes |
| Sam Hamad | 100.0\% | 81.8\% | 100.0\% | 95.5\% | 7.7\% | 51.8\% | Yes |
| Harris Alghamdi | 100.0\% | 82.6\% | 91.3\% | 78.3\% | 24.0\% | 34.3\% |  |
| Aiden Mustafa | 100.0\% | 64.0\% | 92.0\% | 92.0\% | 11.5\% | 43.2\% |  |
| Zane Shaikh | 88.9\% | 70.4\% | 96.3\% | 96.3\% | 26.9\% | 38.5\% |  |
| Elias Abdulmalik | 92.3\% | 80.8\% | 84.6\% | 92.3\% | 14.8\% | 36.9\% |  |
| J.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Abdullah Malik | 96.3\% | 100.0\% | 100.0\% | 66.7\% | 11.1\% | 41.1\% | Yes |
| Ahmad Hakim | 96.0\% | 96.0\% | 84.0\% | 72.0\% | 8.0\% | 38.8\% |  |
| Amir Yousef | 92.0\% | 84.0\% | 88.0\% | 68.0\% | 0.0\% | 34.0\% |  |
| Hamza Soliman | 83.3\% | 91.7\% | 79.2\% | 58.3\% | 23.1\% | 20.0\% |  |
| Hassan Alsheikh | 100.0\% | 100.0\% | 92.0\% | 68.0\% | 7.7\% | 35.6\% | Yes |
| Ibrahim Mousa | 100.0\% | 82.6\% | 78.3\% | 69.6\% | 3.7\% | 34.3\% |  |
| Khalid Naimi | 96.0\% | 80.0\% | 96.0\% | 60.0\% | 3.7\% | 28.4\% |  |
| Yusuf Mahmood | 95.8\% | 100.0\% | 91.7\% | 70.8\% | 3.9\% | 28.7\% |  |
| K. Names intended to be seen as belonging to German women |  |  |  |  |  |  |  |
| K.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Jessica Schneider | 88.9\% | 33.3\% | 70.4\% | 100.0\% | 68.0\% | 73.7\% |  |
| Amanda Ziegler | 95.5\% | 50.0\% | 77.3\% | 100.0\% | 73.9\% | 60.4\% |  |
| Erika Schmidt | 100.0\% | 37.5\% | 91.7\% | 91.7\% | 77.8\% | 75.0\% | Yes |
| Alexandra | 96.2\% | 19.2\% | 92.3\% | 96.2\% | 61.5\% | 68.8\% |  |
| Grossman Anna Weber | $95.7 \%$ | 17.4\% | 87.0\% | 91.3\% | 88.9\% | 80.0\% |  |
| Monica Fuchs | 92.3\% | 34.6\% | 88.5\% | 100.0\% | 78.6\% | 58.1\% |  |
| Leah Schwartz | 95.7\% | 43.5\% | 73.9\% | 100.0\% | 44.4\% | 65.2\% |  |
| Veronica Klein | 100.0\% | 46.2\% | 88.5\% | 96.2\% | 77.8\% | 62.3\% | Yes |
| K.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Andrea Mueller | 88.9\% | 25.9\% | 92.6\% | 100.0\% | 85.2\% | 64.8\% |  |
| Angela Neumann | 92.0\% | 24.0\% | 80.0\% | 96.0\% | 80.0\% | 68.4\% |  |
| Claudia Meyer | 100.0\% | 4.0\% | 72.0\% | 100.0\% | 61.5\% | 72.0\% |  |
| Heidi Schultz | 95.7\% | 60.9\% | 87.0\% | 95.7\% | 59.3\% | 57.0\% | Yes |
| Lydia Braun | 96.0\% | 24.0\% | 88.0\% | 100.0\% | 76.0\% | 59.6\% |  |
| Martha Krueger | 92.9\% | 60.7\% | 85.7\% | 100.0\% | 76.0\% | 55.4\% | Yes |
| Johanna Baumann | 92.0\% | 40.0\% | 88.0\% | 92.0\% | 88.5\% | 51.6\% |  |
| Esther Schwab | 84.6\% | 23.1\% | 69.2\% | 92.3\% | 40.7\% | 41.9\% |  |
| L. Names intended to be seen as belonging to German men |  |  |  |  |  |  |  |
| L.1. With an Anglo-sounding first name |  |  |  |  |  |  |  |
| Kristopher Weiss | 100.0\% | 56.0\% | 80.0\% | 88.0\% | 75.0\% | 56.8\% | Yes |
| Joseph Bauer | 100.0\% | 20.0\% | 92.0\% | 100.0\% | 68.0\% | 71.6\% |  |
| Alexander Lehmann | 100.0\% | 29.2\% | 75.0\% | 91.7\% | 67.9\% | 56.7\% |  |
| Aaron Zimmermann | 96.3\% | 22.2\% | 92.6\% | 96.3\% | 66.7\% | 67.0\% |  |
| Frederick Bergman | 100.0\% | 52.0\% | 80.0\% | 96.0\% | 70.4\% | 57.2\% |  |
| Ralph Schumacher | 100.0\% | 50.0\% | 88.5\% | 96.2\% | 50.0\% | 56.5\% | Yes |
| Walter Weissman | 100.0\% | 37.0\% | 81.5\% | 96.3\% | 45.8\% | 69.6\% |  |
| Frank Berger | 95.8\% | 33.3\% | 83.3\% | 95.9\% | 67.9\% | 59.6\% |  |
| L.2. With an ethnic-sounding first name |  |  |  |  |  |  |  |
| Karl Weber | 100.0\% | 32.0\% | 96.0\% | 92.0\% | 88.9\% | 63.2\% |  |
| Hans Schubert | 100.0\% | 83.3\% | 91.7\% | 58.3\% | 73.9\% | 30.8\% | Yes |
| Jakob Fischer | 100.0\% | 41.7\% | 91.7\% | 83.3\% | 42.3\% | 56.2\% |  |
| Stefan Schreiber | 100.0\% | 56.5\% | 87.0\% | 82.6\% | 66.7\% | 47.0\% |  |
| Kurt Schroeder | 95.7\% | 47.8\% | 100.0\% | 91.3\% | 91.7\% | 56.1\% | Yes |
| Arnold Eisenberg | 100.0\% | 30.8\% | 73.1\% | 92.3\% | 34.6\% | 56.1\% |  |
| August Wagner | 80.0\% | 28.0\% | 88.0\% | 92.0\% | 85.7\% | 50.4\% |  |
| Herman Koch | 100.0\% | 51.9\% | 88.9\% | 88.9\% | 64.3\% | 40.0\% |  |

Table A-2. Correlation between perceived ethnicity and other factors

| Group of names: <br> intended to be seen as... | Correlation between evaluated as intended ethnicity and evaluated as... <br>  <br>  <br> Working or <br> middle class | Not being a first- <br> generation migrant | Being Christian, atheist or <br> having no particular religion | Common <br> name |
| :--- | :--- | :--- | :--- | :--- |
|  | -0.175 | 0.433 | -0.282 | -0.412 |
| White American men | -0.318 | -0.225 | 0.533 | 0.451 |
| Black American women | 0.309 | 0.251 | 0.067 | -0.422 |
| Black American men | 0.327 | -0.596 | 0.142 | -0.716 |
| Hispanic women | -0.336 | -0.316 | -0.017 | 0.240 |
| Hispanic men | -0.222 | -0.480 | -0.805 | -0.246 |
| Asian women | 0.138 | -0.405 | -0.323 | -0.284 |
| Asian men | 0.427 | -0.623 | -0.703 | -0.292 |
| Arab women | 0.102 | -0.191 | -0.689 | -0.095 |
| Arab men | -0.658 | -0.116 | -0.558 |  |
| German women | 0.144 | 0.042 | -0.616 |  |
| German men | 0.093 | -0.790 | -0.787 |  |

Note: correlation coefficients above 0.500 are in bold.


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[^1]:    ${ }^{1}$ Black Americans and Hispanic Americans are the two largest race-ethnicity minority groups in the U.S., while German Americans are the largest European immigrant group. The number of immigrants from Asia and Middle Eastern and North African (MENA) countries has notably increased over the years (Migration Policy Institute, 2021).

[^2]:    2 Because few researchers have investigated the hiring chances of Asian, Arab or German American job applicants, few studies were available as sources of names. To address this lack, we also searched the internet for websites with popular male and female first names within different race-ethnicity minority groups. These websites included Names.org and Germannames.de.
    ${ }^{3}$ For example, MyNameStats.com reports that about $67 \%$ of people with the first name 'Maria' are Hispanic. Equivalent information was not available for Arab and German names. However, the website also indicates the etymology of names, and only names that the website categorized as 'German' or 'Arabic' were considered for this portion of the name experiment.

[^3]:    ${ }^{4}$ For example, about $92 \%$ of the people with the last name 'Garcia' are Hispanic. Moreover, the last name 'Garcia' is ranked number 6, which indicates that it is one of the most common last names in the United States (rank 1 coincides with the most common last name).
    ${ }^{5}$ We are aware that 'race-ethnicity' would have been a more appropriate label.

[^4]:    ${ }^{6}$ That is, we reduced these percentages by the average value within their group and divided the result by the group standard deviation.

