Populated Pre-Analysis Plan

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Abstract

This document reports from a Pre-Analysis Plan registered with the American Economic Association Randomized Control Trial Control Registry (Trial #11183 available here), as described in that document. The Pre-Analysis plan is meticulously followed, and results are reported and summarized. Elaboration is minimal and context, contribution, and discussion are reported here.

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Following Duflo et al. (2020), this "Populated" Pre-Analysis Plan (PAP) reports the results associated with Eames (2023) as outlined in that PAP.¹. One slight deviation is taken from Eames (2023) where I said "to test S5, logit (1) will be run separately for applicants with low (2 years or less) or high (3 years or more) relevant work experience."² In the results shown here, cutoffs for high and low "relevant" experience have been modified: low is 1 year or less, high is 2 years or more. In the pilot week of data collection, I constructed resumes which had a higher probability of relevant experience. After seeing that rates of positive employer response were high, probabilities were modified; as such, few resumes have 3 or more years of relevant experience. All data collected for the study are based on updated experience probabilities (each resume has four work experiences–resumes have a 25% chance of having their most recent experience in the occupation of interest; they have an approximately 43% chance of having one of their first three experiences in the occupation of interest).

1 Data Collection

Data collection proceeded as outlined in the Pre-Analysis Plan. Applicant names, occupations, geographies, and randomization method described in Eames (2023) were used through the project. During the data collection period (May 18, 2023 to October 20, 2023) the target sample size was surpassed: in total, 3,970 resume pairs were distributed (compared to a target of 3,240). Further, in some cases occupation targets were modified given the availability of job postings across geographies.

Table 1 shows paired application counts and percentages by occupation between target and actual. Table 2 and 3 show actual paired application counts by occupation, geography, and treatment: as intended, the sample is balanced overall.

2 Empirical Strategy

I report results from the empirical strategy outlined in Eames (2023). This strategy is described below.

¹Eames (2023) is Trial #11183 pre-registered with the American Economic Association Randomized Control Trial Control Registry

 $^{^{2}}$ Work experience is considered "relevant" when it is in the occupation being applied to. For example, janitorial experience is considered relevant when applying to a janitor position.

2.1 Main Analysis

To estimate discrimination against applicants who disclose nonbinary or binary pronouns (Hypotheses P1 and P2 from Eames 2023), the following logistic regression is run:

(1) $z = \alpha_j + \gamma N B_i + \lambda B_i + X'_i \beta_1 + Z'_j \beta_2 + \varepsilon_{ij}$

where α_j are firm fixed effects, NB_i is an indicator variable which equals 1 if the resume has nonbinary "they/them" pronouns listed, B_i is an indicator variable which equals 1 if the resume has binary "he/him" or "she/her" pronouns listed, X_i is a vector of resume characteristics that may influence baseline employer response, Z_j is a vector of firm and job posting characteristics which many influence baseline employer response, and ε_{ij} is an error term. Resume characteristics in vector X_i are described in Table 4; job posting and firm characteristics in vector Z_j are described in Table 5. Note that I reference including firm size as a control in the PAP, but I was unable to get this data. Multiple specifications are run, where some include and some exclude (α_j, X_i, Z_j) ; when "excluding" α_j it is replaced with intercept α . Estimates $\hat{\gamma}, \hat{\lambda}$ can be interpreted as discrimination against applicants who disclose pronouns.

To determine the extent to which discrimination against applicants who disclose "they/them" pronouns is rooted in gender identity (Hypothesis P3 in Eames 2023), the following logistic regression is run excluding control observations (i.e., all resumes list pronouns):

(2) $z = \alpha + \delta N B_i + X'_i \beta_1 + Z'_j \beta_2 + \varepsilon_{ij}$

Similar to equation (1), multiple specifications are run.

For the remaining hypotheses (denoted k below), (1) is run separately for each group being compared. In addition, the following logistic regression is run:

 $(3.k) \quad z = \alpha_j + \gamma_1 N B_i + \gamma_2 [N B_i \cdot I_k] + \lambda_1 B_i + \lambda_2 [B_i \cdot I_k] + X'_i \beta_1 + Z'_j \beta_2 + \varepsilon_{ij}$

where I_k represents a vector of interaction variables associated with each secondary hypothesis k. These interactions are indicator variables (e.g., to test if discrimination magnitude differs politically, $I_k = R_j$ which equals 1 if the job posting is located in a Republican geography) and are described in Table 6. Where possible, a second version of regression (4) is investigated which replaces indicator variables with continuous variables described in Table 7. Note that I reference including firm size as a continuous interaction replacement for job posting text in the PAP, but I was unable to get this data. Similar to equation (1), multiple specifications are run.

A final regression is run including all interactions simultaneously:

(4) $z = \alpha_j + \gamma_1 N B_i + \gamma_2 [N B_i \cdot I] + \lambda_1 B_i + \lambda_2 [B_i \cdot I] + X'_i \beta_1 + Z'_j \beta_2 + \varepsilon_{ij}$

where I is a vector including all interaction variables in $I_k, k \in [1, 6]$. As with equation (1), multiple specifications are run. As with equation (4), a second version is run which replaces indicator variables with continuous variables where possible.

2.2 Robustness Check

I use the Neumark (2012) method to address a critique of correspondence studies presented by Heckman and Siegelman (1993) and Heckman (1998). To elaborate, Heckman and Siegelman (1993) and Heckman (1998) show that if the variance of unobservable determinants of productivity differs between treatment and control groups, correspondence studies can find spurious estimates of discrimination. Neumark (2012) develops a method to address this critique which relies on an additional identifying assumption: some applicant characteristics affect perceived productivity and their impact does not vary between groups. Under this assumption (with testable implications), discrimination estimates can be disaggregated into a level part that includes taste-based and first-moment statistical discrimination, and a variance part that includes second-moment statistical discrimination.

To do this, I leverage a heteroskedastic logistic model rather than the heteroskedastic probit model Neumark (2012) uses, where marginal effects can be similarly disaggregated (as noted by Neumark). Using the same notation and methodology as Neumark (2012), consider a model where the latent variable $Y^* = P(Y = 1)$ depends on a vector of variables S (indexed by k) with coefficients ψ , and the variance depends on a vector of variables Twith coefficients θ .³ With the elements of T arranged such that the kth element is S_k , then the overall partial derivative of P(Y = 1) with respect to S_k is:

(5)
$$\frac{\partial P(Y=1)}{\partial S_k} = \frac{\left(\frac{\psi_k - X'\psi \cdot \theta_k}{\exp\left(T'\theta\right)}\right) \cdot \exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)}{\left[1 + \exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)\right]^2}$$

The level part is then:

(5')
$$\frac{\left(\frac{\psi_k}{\exp\left(T'\theta\right)}\right) \cdot \exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)}{\left[1 + \exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)\right]^2}$$

While the variance part is: (5") $\frac{\left(\frac{-X'\psi\cdot\theta_k}{\exp\left(T'\theta\right)}\right)\cdot\exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)}{\left[1+\exp\left(\frac{-X'\psi}{\exp\left(T'\theta\right)}\right)\right]^2}$

³That is, $Var(\varepsilon) = [\exp{(T\theta)}]^2$

3 Results

3.1 Main Analysis

Panel A of Table 8 reports regression results for equation (1). Note that the interpretation of regression coefficients in specification (E) is unique: when including job posting fixed effects, resume pairs with concordant employer responses are automatically excluded from analysis, and only pairs with discordant employer responses are retained. Hence, marginal effects reported in (E) are conditional on discordant employer responses and, as such, are much larger. Specification (D) is the preferred specification: it includes resume and firm controls, but does not include firm fixed effects. Panel A shows strong evidence of discrimination against applicants who disclose nonbinary "they/them" pronouns. In the preferred specification (D), discrimination is estimated to be 5.4 percentage points (with a 95% confidence interval of 3.8 to 7.1 percentage points). By comparison, whether there is discrimination against presumed cisgender applicants who disclose "he/him" or "she/her" pronouns is inconclusive: the point estimate in preferred specification (D) is -1.7 percentage points). Hence, this does not imply a precise zero: while I can rule out positive discrimination, there could be no discrimination or moderate discrimination.

Panel B of Table 8 reports regression results for equation (2). Note that since control resumes are excluded, it is not possible to fit specification (E)-the vast majority of firms are only sent one set of paired resumes. Panel B shows evidence that applicants who disclose nonbinary pronouns are discriminated against even when controlling for the pronoun disclosure. There could be political or other signals associated with the act of pronoun disclosure: rather than applicants' nonbinary gender identity leading to discrimination, it may be the fact that pronoun disclosure is occurring at all. I find that applicants who disclose "they/them" pronouns are discriminated against even when compared to presumed cisgender applicants who disclose pronouns. Discrimination is estimated to be 3.7 percentage points in the preferred specification (with a 95% confidence interval of 0.8 to 6.6 percentage points).

Considering discrimination heterogeneity, Table 9 shows that discrimination is higher (about double) against applicants who disclose "they/them" pronouns in Republican geographies. Note that in Panel C, the Republican interaction equals 1 if the job posting is in Spokane, WA; Provo, UT, or Colorado Springs, CO. This is true despite each residing in the same state as a paired Democratic geography (Seattle, WA; Salt Lake City, UT; Denver, CO) and two of three pairs being neighbouring cities. By contrast, discrimination against presumed cisgender applicants who disclose pronouns is inconclusive. The point estimate for change in positive employer response is -1.3 percentage points, but the 95% confidence interval ranges from -5.8 to 3.2 percentage points.

Remaining discrimination heterogeneity is similarly inconclusive, shown in Tables 10 to 14. This study is unable to conclude that discrimination is higher or lower against applicants who are implied male or female, with more or less relevant experience, by occupation worker composition, by occupation customer interaction, and by key phrases contained in occupation job posting text. This is unsurprising, given limited power.

Results are similar when including all interactions, shown in Tables 15 and 16.

3.2 Robustness Check

Panel B of Table 17 shows that discrimination estimates are robust to the Heckman Siegelman critique for nonbinary applicants. The unbiased "levels" estimate is that disclosing "they/them" pronouns reduces positive employer response by 5.3 percentage points. This is statistically significant at the 5% level, with a 95% confidence interval of 1.1 to 9.4 percentage points. Further, Panel C does not show evidence that Neumark (2012)'s identifying assumption is violated (null hypotheses are never rejected). By comparison, the unbiased estimate of discrimination against presumed cisgender applicants who disclose binary "he/him" or "she/her" pronouns is unsurprisingly statistically insignificant.

4 References

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Tables and Figures

| | Target Application Counts | | | Actual Application Counts | | |
|-----------------------------|---------------------------|-------|------------------|---------------------------|-------|------------------|
| Occupation | Percentage | Count | Average per City | Percentage | Count | Average per City |
| Receptionist | 6.7% | 216 | 36 | 7.5% | 299 | 50 |
| Cashier | 5.0% | 162 | 27 | 4.4% | 177 | 30 |
| Housekeeper | 6.7% | 216 | 36 | 5.7% | 229 | 38 |
| Certified Nursing Assistant | 10.0% | 324 | 54 | 9.6% | 381 | 64 |
| Administrative Assistant | 5.0% | 162 | 27 | 5.5% | 218 | 36 |
| Retail Salesperson | 11.7% | 378 | 63 | 12.5% | 500 | 83 |
| Server | 6.7% | 216 | 36 | 5.0% | 200 | 33 |
| Cook | 8.3% | 270 | 45 | 8.7% | 346 | 58 |
| Baker | 3.3% | 108 | 18 | 2.3% | 93 | 16 |
| Assembler / Fabricator | 3.3% | 108 | 18 | 4.2% | 166 | 28 |
| Construction Worker | 5.0% | 162 | 27 | 5.4% | 215 | 36 |
| Truck Driver | 10.0% | 324 | 54 | 9.9% | 396 | 66 |
| Warehouse Worker | 8.3% | 270 | 45 | 8.4% | 335 | 56 |
| Janitor | 5.0% | 162 | 27 | 5.4% | 217 | 36 |
| Landscaper | 5.0% | 162 | 27 | 5.3% | 213 | 36 |

Table 1: Paired Applications by Occupation: Target versus Actual

Note: percentage is the percentage of target and actual applications submitted in the occupaton of interest. Average per city is count divided by six, rounded to the nearest integer.

| | Actual Application Count per Occupation and City | | | | | | |
|-----------------------------|--|---------|----------------|-------|--------|------------------|------|
| Occupation | Seattle | Spokane | Salt Lake City | Provo | Denver | Colorado Springs | All |
| Receptionist | 36 | 33 | 30 | 35 | 32 | 35 | 201 |
| Cashier | 25 | 24 | 23 | 23 | 23 | 21 | 139 |
| Housekeeper | 25 | 23 | 25 | 32 | 24 | 22 | 151 |
| Certified Nursing Assistant | 48 | 45 | 34 | 50 | 45 | 39 | 261 |
| Administrative Assistant | 26 | 25 | 23 | 21 | 27 | 25 | 147 |
| Retail Sales | 56 | 53 | 57 | 57 | 53 | 58 | 334 |
| Server | 23 | 25 | 20 | 22 | 19 | 23 | 132 |
| Cook | 31 | 42 | 41 | 41 | 33 | 39 | 227 |
| Baker | 9 | 12 | 14 | 12 | 10 | 9 | 66 |
| Assembler / Fabricator | 19 | 17 | 17 | 17 | 20 | 15 | 105 |
| Construction Worker | 23 | 24 | 22 | 24 | 23 | 25 | 141 |
| Truck Driver | 45 | 47 | 50 | 43 | 42 | 40 | 267 |
| Warehouse Worker | 37 | 38 | 37 | 33 | 35 | 37 | 217 |
| Janitor | 24 | 23 | 24 | 31 | 30 | 30 | 162 |
| Landscaper | 26 | 26 | 25 | 20 | 26 | 22 | 145 |
| Total | 453 | 457 | 442 | 461 | 442 | 440 | 2695 |

Table 2: Count of Paired Resumes, Nonbinary "they/them" Pronoun Treatment

| | Actual Application Count per Occupation and City | | | | | | |
|-----------------------------|--|---------|----------------|-------|--------|------------------|------|
| Occupation | Seattle | Spokane | Salt Lake City | Provo | Denver | Colorado Springs | All |
| Receptionist | 14 | 16 | 21 | 15 | 18 | 14 | 98 |
| Cashier | 5 | 5 | 8 | 5 | 7 | 8 | 38 |
| Housekeeper | 13 | 15 | 13 | 7 | 14 | 16 | 78 |
| Certified Nursing Assistant | 16 | 19 | 28 | 13 | 19 | 25 | 120 |
| Administrative Assistant | 10 | 11 | 14 | 15 | 9 | 12 | 71 |
| Retail Sales | 28 | 29 | 27 | 27 | 30 | 25 | 166 |
| Server | 10 | 9 | 12 | 11 | 15 | 11 | 68 |
| Cook | 27 | 16 | 17 | 17 | 25 | 17 | 119 |
| Baker | 6 | 3 | 3 | 4 | 6 | 5 | 27 |
| Assembler | 9 | 10 | 11 | 11 | 7 | 13 | 61 |
| Construction Worker | 12 | 12 | 14 | 13 | 13 | 10 | 74 |
| Truck Driver | 21 | 18 | 15 | 25 | 24 | 26 | 129 |
| Warehouse Worker | 19 | 17 | 20 | 23 | 21 | 18 | 118 |
| Janitor | 12 | 12 | 14 | 6 | 6 | 5 | 55 |
| Landscaper | 9 | 10 | 10 | 15 | 10 | 14 | 68 |
| Total | 211 | 202 | 227 | 207 | 224 | 219 | 1290 |

Table 3: Count of Paired Resumes, Binary "he/him" or "she/her" Pronoun Treatment

Table 4: Resume Characteristics (X_i Control Variables)

| Variable | Type | Description |
|---|---|---|
| Occupation Location Research Assistant | Fixed Effect Fixed Effect Fixed Effect | Fixed effects for each of the 15 occupations being applied for Fixed effects for each of the six cities being applied within Fixed effects for each Research Assistant who found and applied to the job posting |
| Sent first Resume lag Resume lag ² | Indicator Discrete Discrete | Equals 1 if the resume was sent first Equals 0 if the resume was sent first, and the hours between the first and second application if the resume was sent second Above squared |
| GED Associate's Bachelor's High Score High School Low Score High School | Indicator Indicator Indicator Indicator Indicator | Equals 1 if the applicant achieved a GED Equals 1 if the applicant achieved an Associate's degree Equals 1 if the applicant achieved a Bachelor's degree Equals 1 if the applicant went to a high school with test scores rated 'A' by Niche Equals 1 if the applicant went to a high school with test scores rated 'C' or below by Niche |
| Worked in HS Years relevant Years relevant ² Current relevant Current most common Current common Prior most common ² Prior common Prior common ² | Indicator Discrete Indicator Indicator Indicator Discrete Discrete Discrete Discrete | Equals 1 if the applicant worked during high school Equals the number of years of "relevant" work experience. Above squared Equals 1 if the applicant's most recent work experience is "relevant" Equals 1 if the applicant's most recent work experience is "most common" Equals 1 if the applicant's most recent work experience is "common" Equals 1 if the applicant's most recent work experience is "common" Equals 1 if the applicant's most recent work experience is "common" Equals the years of "most common" experience, omitting most recent experience Above squared Equals the years of "common" experience, omitting most recent experience Above squared |
| Summary Skill: communication Skill: computer Skill: detail oriented Skill: fast learner Skill: fast-paced Skill: leader Skill: leader Skill: organized Skill: team player | Indicator Indicator Indicator Indicator Indicator Indicator Indicator Indicator Indicator | Equals 1 if the resume includes a summary or objective section Equals 1 if the applicant's resume lists "clear communicator" as a skill Equals 1 if the applicant's resume lists "computer skills (tech savvy)" as a skill Equals 1 if the applicant's resume lists "detail oriented" as a skill Equals 1 if the applicant's resume lists "fast learner" as a skill Equals 1 if the applicant's resume lists "thrives in fast-paced settings" as a skill Equals 1 if the applicant's resume lists "leadership abilities" as a skill Equals 1 if the applicant's resume lists "leadership abilities" as a skill Equals 1 if the applicant's resume lists "organized and efficient" as a skill Equals 1 if the applicant's resume lists "team player" as a skill |

Note: Work experience is considered "relevant" if it is in the position being applied for (e.g., if an applicant is applying to a janitor position, janitorial experience is "relevant"). Work experience is considered "most common" if it is in the position observed to be most common among non-"relevant" past experiences. This position is occupation-specific, and identified from a resume-scraping process: of the 12 most frequent positions identified for each occupation, this position is most commonly observed before the worker obtained a job in the occupation of interest. Work experience is defined as "common" if it is the second or third most common position. Identifying relevant and common positions is done to control for past work experience in a way that is consistent across occupations. These variables are included in lieu of position fixed effects because experience in a given position influences the probability of positive employer response heterogeneously across occupations. For example, cashier experience may be seen as generally relevant when applying as a sales associate but generally irrelevant when applying as a janitor.

| Table 5: Firm and Job Characteristics (. | Z_j Control Variables) |
|--|--------------------------|
|--|--------------------------|

| Variable | Type | Description |
|--|--------------|--|
| Occupation | Fixed Effect | Fixed effects for each of the 15 occupations being applied for |
| Location | Fixed Effect | Fixed effects for each of the six cities being applied within |
| Research Assistant | Fixed Effect | Fixed effects for each Research Assistant who found and applied to the job posting |
| Estimated applications | Discrete | Equals the lower bound of the range of applicants estimated to have applied to the job posting (this was scraped from the job board website, values range from 1 to 1,496). Equals 0 if the job board website did provide an estimated application range |
| Estimated applications ² | Discrete | Above squared |
| Missing estimated applications | Indicator | Equals 1 if the job board did not provide an estimated application range |
| Relative income | Continuous | The lower bound of estimated income expressed as a percent of the occupation-specific average |
| Relative $income^2$ | Continuous | Above squared |
| Relative income difference | Continuous | The difference between the upper and lower estimated income bounds ex- pressed as a percent of the occupation-specific average |
| Relative income difference ^{2} | Continuous | Above squared |
| Missing estimated income | Indicator | Equals 1 if the job posting did not include an associated income range |

| I_k | Notation | Variable | Description |
|-----------------------|----------|----------------------|--|
| I_1 | R_j | Republican Geography | Equals 1 if the job is located in a Republican geography (Spokane, WA; Provo, UT; Colorado Springs, CO) |
| I_2 | M_i | Implied Male | Equals 1 if the applicant is implied to be male (through name assignment) |
| I_3 | RLE_i | Relevant Experience | Equals the years of "relevant" experience the applicant has. Note that work experience is defined as "relevant" if it is in the position being applied for (e.g., if an applicant is applying to a janitor position, years of janitorial experience) |
| I_4 | MD_j | Male-Dominated | Equals 1 if the applicant is applying in a male-dominated occupation (construction worker, truck driver, warehouse worker, janitor, landscaper) |
| I_4 | FD_j | Female-Dominated | Equals 1 if the applicant is applying in a female-dominated occupation (receptionist, cashier, housekeeper, certified nursing assistant, administrative assistant) |
| I_5 | HC_j | High Customer-Facing | Equals 1 if the applicant is applying in a high customer in- teraction occupation (receptionist, cashier, retail salesper- son, server) |
| I_5 | LC_j | Low Customer-Facing | Equals 1 if the applicant is applying in a low customer in- teraction occupation (certified nursing assistant, adminis- trative assistant, baker, assembler / fabricator, warehouse worker, janitor, landscaper) |
| I_6 | EO_j | Equal Opportunity | Equals 1 if the job posting includes the text "EOE," "EEO," "Equal Opportunit," "Equal-Opportunit," "Equal Employ- ment," or "Equal-Employment" |
| I_6 | GS_j | LGBTQ | Equals 1 if the job posting includes the text "gender iden- tity," "gender expression," "sexual orientation," "sexuality," "LGBT," "LBGT," "transgender," or "queer" |
| <i>I</i> ₆ | SB_j | Small Business | Equals 1 if the job posting includes the text "small bus," "small-bus," "small com, "small-com," "small firm," "smal- firm," "small empl," "small-empl", "local bus," "local-bus," "locally own," "locally-own," "locally op," "locally-op," "family bus," "family-bus," "family own," "family-own," "small, independent bus," "small independent bus," "small team," "small but growing," or "small and busy" |

 Table 6: Interaction Variables

| I_k | Indicator Variable | Replacement | Description |
|----------------|--------------------|----------------|---|
| I_1 | R_j | Vote Share | Equals the Republican vote share in a CBSA, adjusted such that Republican and Democratic vote shares sum to 1 |
| I_4 | MD_j, FD_j | Sex Difference | Equals the difference between the percentage of the work- force in the occupation who is female minus the percentage who is male |
| I ₅ | HC_j, LC_j | O*NET Score | O*NET score representing the importance of "performing for people or working directly with the public. This in- cludes serving customers in restaurants and stores, and re- ceiving clients or guests" (National Center for O*NET De- velopment 2023). A crosswalk matching occupation codes between ACS and O*NET was sourced from Ruggles et al. (2023). For the Cook, Truck Driver, and Warehouse Worker occupations, ACS codes were mapped to multiple O*NET occupation codes. In these cases, O*NET score was aver- aged across mapped codes. |

Table 7: Interaction Variables (Continuous Versions)

| | (A) | (B) | (C) | (D) | (E) | | |
|---|---------------------------|--------------------------|---------------------------|---------------------------|---------------------------|--|--|
| Panel A: Disclosing pronouns compared to not disclosing | | | | | | | |
| Nonbinary Pronouns | -0.054^{***} (0.008) | -0.054*** (0.008) | -0.055^{***} (0.008) | -0.054^{***} (0.008) | -0.255^{***} (0.042) | | |
| Binary Pronouns | -0.018 (0.012) | -0.017 (0.012) | -0.016 (0.012) | -0.017 (0.012) | -0.111^{**} (0.055) | | |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 | | |
| Panel B: Disclosing n | onbinary com | pared to binar | ry pronouns | | | | |
| Nonbinary Pronouns | -0.036^{**} (0.015) | -0.036^{**} (0.015) | -0.038^{***} (0.014) | -0.037^{**} (0.015) | | | |
| Observations | 3985 | 3985 | 3985 | 3985 | | | |
| Resume Controls Firm Controls Job Posting FE | | Х | Х | X X | X X X | | |

Table 8: Estimates of Discrimination Against Applicants who Disclose Pronouns

Note: Panel A reports average marginal effects for the associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Marginal effects are derived from the logistic regression described in equations (1). Panel B reports average marginal effects associated with disclosing nonbinary "they/them" pronouns compared to applicants who disclose binary "he/him" or "she/her" pronouns congruent with name-implied sex. Marginal effects are derived from the logistic regression described in equation (2); only treated observations are included. In all panels, the dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|--|--|---------------------------|---------------------------|---------------------------|---------------------------|
| Panel A: Regressions inclu | ide application | ns in Democra | atic geographi | es only | |
| Nonbinary Pronouns | -0.038^{***} (0.011) | -0.038^{***} (0.011) | -0.037^{***} (0.011) | -0.037^{***} (0.011) | -0.193 (0.290) |
| Binary Pronouns | -0.010 (0.016) | -0.009 (0.016) | -0.010 (0.016) | -0.012 (0.016) | -0.037 (0.119) |
| Observations | 3998 | 3998 | 3998 | 3998 | 722 |
| Panel B: Regressions inclu | ide application | ns in Republic | an geographie | s only | |
| Nonbinary Pronouns | -0.070^{***} (0.011) | -0.071^{***} (0.013) | -0.073^{***} (0.011) | -0.072^{***} (0.013) | -0.332^{***} (0.082) |
| Binary Pronouns | -0.028^{*} (0.016) | -0.025 (0.016) | -0.022 (0.016) | -0.022 (0.016) | -0.130^{*} (0.078) |
| Observations | 3972 | 3972 | 3972 | 3972 | 738 |
| Panel C: Regressions inclu | ide all applica | tions, indicat | or interaction | | |
| Nonbinary Pronouns | -0.029^{**} (0.012) | -0.036^{***} (0.011) | -0.036^{***} (0.011) | -0.035^{***} (0.011) | -0.179^{***} (0.054) |
| Nonbinary \times Republican | -0.052^{***} (0.017) | -0.038^{**} (0.016) | -0.039^{**} (0.016) | -0.040^{**} (0.016) | -0.156^{*} (0.080) |
| Binary Pronouns | -0.002 (0.017) | -0.009 (0.016) | -0.009 (0.016) | -0.010 (0.016) | -0.096 (0.074) |
| Binary \times Republican | -0.034 (0.024) | -0.017 (0.023) | -0.015 (0.023) | -0.013 (0.023) | -0.030 (0.106) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Panel D: Regressions inclu | ude all applica | tions, continu | ious interactio | on | |
| Nonbinary Pronouns | $\begin{array}{c} 0.008 \ (0.035) \end{array}$ | -0.007 (0.030) | -0.007 (0.029) | -0.005 (0.030) | -0.060 (0.149) |
| Nonbinary \times Vote Share | -0.129^{*} (0.070) | -0.097 (0.059) | -0.099^{*} (0.059) | -0.103^{*} (0.059) | -0.391 (0.282) |
| Binary Pronouns | $0.028 \\ (0.050)$ | -0.001 (0.044) | -0.001 (0.044) | -0.005 (0.044) | -0.052 (0.194) |
| Binary \times Vote Share | -0.094 (0.097) | -0.033 (0.088) | -0.031 (0.088) | -0.024 (0.088) | -0.122 (0.386) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls Firm Controls Job Posting FE | | Х | Х | X X | X X X |

Table 9: Estimates of Discrimination Against Applicants who Disclose Pronouns:by Geographic Politics

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panels A and B are derived from the logistic regression described in equation (1) with different data subsets; Panels C and D from (3.1). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|--|---|---|---|---|--|
| Panel A: Regressions includ | le implied ma | le applicants | only | | |
| Nonbinary Pronouns | -0.053^{***} (0.011) | -0.053^{***} (0.012) | -0.053^{***} (0.011) | -0.053^{***} (0.012) | -0.267^{***} (0.067) |
| Binary Pronouns | -0.015 (0.016) | -0.017 (0.016) | -0.017 (0.016) | -0.018 (0.016) | -0.156^{*} (0.089) |
| Observations | 3988 | 3988 | 3988 | 3988 | 684 |
| Panel B: Regressions includ | le implied fem | ale applicants | s only | | |
| Nonbinary Pronouns | -0.055^{***} (0.011) | -0.056^{***} (0.012) | -0.058^{***} (0.011) | -0.057^{***} (0.012) | -0.300 (0.552) |
| Binary Pronouns | -0.022 (0.016) | -0.019 (0.016) | -0.016 (0.016) | -0.018 (0.016) | -0.087 (0.107) |
| Observations | 3982 | 3982 | 3982 | 3982 | 722 |
| Panel C: Regressions includ | le all applicate | ions | | | |
| Nonbinary Pronouns | -0.055^{***} (0.011) | -0.056^{***} (0.011) | -0.057^{***} (0.011) | -0.056^{***} (0.011) | -0.262^{***} (0.054) |
| Nonbinary \times Implied Male | $\begin{array}{c} 0.001 \\ (0.016) \end{array}$ | $0.003 \\ (0.016)$ | $0.004 \\ (0.016)$ | $0.004 \\ (0.016)$ | $\begin{array}{c} 0.015 \ (0.075) \end{array}$ |
| Binary Pronouns | -0.021 (0.016) | -0.018 (0.016) | -0.017 (0.016) | -0.017 (0.016) | -0.106 (0.075) |
| Binary \times Implied Male | $\begin{array}{c} 0.006 \\ (0.024) \end{array}$ | $\begin{array}{c} 0.002 \\ (0.024) \end{array}$ | $\begin{array}{c} 0.001 \\ (0.024) \end{array}$ | $\begin{array}{c} 0.000 \\ (0.024) \end{array}$ | -0.015 (0.106) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls Firm Controls Job Posting FE | | X | X | X X | X X X |

Table 10: Estimates of Discrimination Against Applicants who Disclose Pronouns: by Implied Sex

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panels A and B are derived from the logistic regression described in equation (1) with different data subsets; Panel C from (3.2) The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|-----------------------------------|----------------|---------------------|----------------|--------------|-----------|
| Panel A: Regressions include | applicants wit | $h \geq 2$ years of | f relevant exp | erience only | |
| Nonbinary Pronouns | -0.071*** | -0.070** | -0.071*** | -0.072** | -0.314 |
| | (0.014) | (0.029) | (0.014) | (0.029) | (4.465) |
| Binary Pronouns | -0.010 | -0.013 | -0.010 | -0.009 | -0.024 |
| | (0.020) | (0.021) | (0.020) | (0.021) | (0.109) |
| Observations | 2852 | 2852 | 2852 | 2852 | 578 |
| Panel B: Regressions include | applicants wit | h < 2 years of | f relevant exp | erience only | |
| Nonbinary Pronouns | -0.045*** | -0.046*** | -0.046*** | -0.046*** | -0.252** |
| | (0.010) | (0.010) | (0.009) | (0.010) | (0.128) |
| Binary Pronouns | -0.024* | -0.020 | -0.021 | -0.020 | -0.156 |
| | (0.014) | (0.014) | (0.014) | (0.014) | (0.111) |
| Observations | 5118 | 5118 | 5118 | 5118 | 848 |
| Panel C: Regressions include | all applicants | | | | |
| Nonbinary Pronouns | -0.047*** | -0.048*** | -0.047*** | -0.047*** | -0.245*** |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.054) |
| Nonbinary \times Years Relevant | -0.006 | -0.006 | -0.007 | -0.007 | -0.009 |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.032) |
| Binary Pronouns | -0.026 | -0.022 | -0.025 | -0.024 | -0.126 |
| | (0.016) | (0.017) | (0.016) | (0.016) | (0.080) |
| Binary \times Years Relevant | 0.007 | 0.005 | 0.008 | 0.007 | 0.013 |
| | (0.011) | (0.011) | (0.010) | (0.011) | (0.048) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls | | X | | X | X |
| Firm Controls | | | Х | Х | Х |
| Job Posting FE | | | | | Х |

Table 11: Estimates of Discrimination Against Applicants who Disclose Pronouns: by Experience

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panels A and B are derived from the logistic regression described in equation (1) with different data subsets; Panel C from (3.3). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|---|---------------------------|---------------------------|---|---------------------------|---|
| Panel A: Regressions include applications to male-dominated occupations only | | | | | |
| Nonbinary Pronouns | -0.053^{***} (0.013) | -0.056^{***} (0.014) | -0.052^{***} (0.013) | -0.055^{***} (0.014) | -0.261^{***} (0.080) |
| Binary Pronouns | -0.011 (0.019) | -0.010 (0.019) | -0.014 (0.019) | -0.013 (0.019) | -0.141 (0.110) |
| Observations | 2752 | 2752 | 2752 | 2752 | 476 |
| Panel B: Regressions include appl | lications to non- | -dominated occu | pations only | | |
| Nonbinary Pronouns | -0.065*** | -0.064*** | -0.068*** | -0.066*** | -0.321 |
| | (0.014) | (0.015) | (0.014) | (0.015) | (0.380) |
| Binary Pronouns | -0.030 | -0.025 | -0.023 | -0.021 | -0.007 |
| Observations | (0.020) | (0.020) | (0.020) | (0.020) | (0.095) |
| | 2010 | 2010 | 2010 | 2010 | 520 |
| Panel C: Regressions include appl | lications to fema | ale-dominated of | ccupations only | 0.04=*** | 0.007 |
| Nonbinary Pronouns | -0.045^{***} (0.014) | -0.047^{***} (0.014) | -0.046^{***} | -0.047^{***} (0.014) | -0.237 (0.249) |
| Binary Pronouns | -0.015 | -0.019 | -0.012 | -0.020 | -0.104 |
| Differy Fronound | (0.021) | (0.021) | (0.021) | (0.020) | (0.208) |
| Observations | 2608 | 2608 | 2608 | 2608 | 500 |
| Panel D: Regressions include all | applications, ind | licator interactio | ons | | |
| Nonbinary Pronouns | -0.047*** | -0.060*** | -0.064*** | -0.062*** | -0.292*** |
| - | (0.015) | (0.014) | (0.014) | (0.014) | (0.061) |
| Nonbinary \times Male Dominated | -0.032 (0.022) | $0.003 \\ (0.021)$ | $\begin{array}{c} 0.010 \\ (0.021) \end{array}$ | $0.006 \\ (0.021)$ | $\begin{array}{c} 0.030 \\ (0.094) \end{array}$ |
| Nonbinary \times Female Dominated | $0.011 \\ (0.023)$ | 0.014 (0.020) | $0.018 \\ (0.021)$ | 0.017 (0.021) | $0.096 \\ (0.087)$ |
| Binary Pronouns | -0.013 (0.021) | -0.026 (0.019) | -0.024 (0.019) | -0.023 (0.019) | -0.111 (0.094) |
| Binary \times Male Dominated | -0.0219 | 0.0171 | 0.0110 | 0.0113 | 0.0134 |
| | (0.0293) | (0.0291) | (0.0287) | (0.0287) | (0.133) |
| Binary \times Female Dominated | (0.007) | (0.014) | (0.014) | (0.009) | -0.010 (0.130) |
| Observations | 7970 | (0.000) 7970 | (0.000) 7970 | 7970 | 1586 |
| | | | | | |
| I unci D. Incyressions include dd applications, continuous interactions Norbinowy Dropoung 0.054*** 0.054*** 0.054*** | | | | | |
| Nonomary 1 ronouns | (0.008) | (0.008) | (0.008) | (0.008) | (0.042) |
| Nonbinary \times Sex Difference | 0.0208 (0.0142) | 0.0049 | 0.0026 | 0.0047 (0.0131) | 0.0354 |
| Binary Pronouns | -0.017 | -0.017 | -0.016 | -0.016 | -0.111** |
| Dinary Trene and | (0.012) | (0.012) | (0.012) | (0.012) | (0.055) |
| Binary \times Sex Difference | 0.018 | 0.002 | 0.008 | 0.004 | 0.000 |
| | (0.019) | (0.019) | (0.019) | (0.019) | (0.083) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls | | Х | V | X | X |
| Job Posting FE | | | Λ | Λ | л Х |

Table 12: Estimates of Discrimination Against Applicants who Disclose Pronouns: by Worker Composition

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panels A to C are derived from the logistic regression described in equation (1) with different data subsets; Panels D and E from (3.4). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) | |
|--|---|---|---|---|---------------------------|--|
| Panel A: Regressions include applications to high customer-facing occupations only | | | | | | |
| Nonbinary Pronouns | -0.059^{***} (0.015) | -0.059^{***} (0.016) | -0.063^{***} (0.014) | -0.062^{***} (0.016) | -0.326 (0.294) | |
| Binary Pronouns | -0.019 (0.021) | -0.015 (0.021) | -0.009 (0.022) | -0.010 (0.021) | 0.075 (0.106) | |
| Observations | 2352 | 2352 | 2352 | 2352 | 472 | |
| Panel B: Regressions include applications to medium customer-facing occupations only | | | | | | |
| Nonbinary Pronouns | -0.034^{**} (0.014) | -0.031^{**} (0.014) | -0.032^{**} (0.014) | -0.030^{**} (0.014) | -0.137 (0.087) | |
| Binary Pronouns | -0.028 (0.021) | -0.028 (0.021) | -0.031 (0.021) | -0.031 (0.021) | -0.210 (0.175) | |
| Observations | 2372 | 2372 | 2372 | 2372 | 416 | |
| Panel C: Regressions include applicat | ions to low cu | ustomer-facing | g occupations | only | | |
| Nonbinary Pronouns | -0.053^{***} (0.016) | -0.034^{**} (0.014) | -0.032^{**} (0.015) | -0.033^{**} (0.015) | -0.139^{**} (0.070) | |
| Nonbinary \times High Customer Facing | -0.016 (0.023) | -0.025 (0.021) | -0.031 (0.020) | -0.027 (0.021) | -0.143 (0.096) | |
| Nonbinary \times Low Customer Facing | $0.008 \\ (0.022)$ | -0.031^{*} (0.019) | -0.034^{*} (0.019) | -0.032^{*} (0.019) | -0.180^{*} (0.104) | |
| Binary Pronouns | -0.046^{**} (0.022) | -0.028 (0.021) | -0.032 (0.021) | -0.031 (0.021) | -0.189^{*} (0.102) | |
| Binary \times High Customer Facing | $\begin{array}{c} 0.020 \\ (0.034) \end{array}$ | $\begin{array}{c} 0.015 \\ (0.032) \end{array}$ | $\begin{array}{c} 0.021 \\ (0.032) \end{array}$ | $\begin{array}{c} 0.021 \\ (0.032) \end{array}$ | $0.186 \\ (0.134)$ | |
| Binary \times Low Customer Facing | 0.060^{*} (0.033) | $0.019 \\ (0.029)$ | $0.026 \\ (0.029)$ | $0.023 \\ (0.029)$ | $0.076 \\ (0.124)$ | |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 | |
| Panel E: Regressions include all applications, continuous interactions | | | | | | |
| Nonbinary Pronouns | -0.035 (0.027) | -0.055^{**} (0.024) | -0.053^{**} (0.024) | -0.054^{**} (0.024) | -0.271^{***} (0.102) | |
| Nonbinary \times O*NET Score | -0.0003 (0.0004) | $0.0000 \\ (0.0004)$ | $0.0000 \\ (0.0004)$ | $0.0000 \\ (0.0004)$ | 0.0003 (0.0017) | |
| Binary Pronouns | $\begin{array}{c} 0.001 \\ (0.037) \end{array}$ | -0.019 (0.034) | -0.019 (0.034) | -0.020 (0.034) | -0.257 (0.163) | |
| Binary × O*NET Score | -0.0003 (0.0006) | $0.0000 \\ (0.0006)$ | $0.0000 \\ (0.0006)$ | 0.0001 (0.0006) | 0.0028 (0.0027) | |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 | |
| Resume Controls Firm Controls Job Posting FE | | Х | Х | X X | X X X | |

Table 13: Estimates of Discrimination Against Applicants who Disclose Pronouns: by Customer Interaction

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns.Panels A to C are derived from the logistic regression described in equation (1) with different data subsets; Panels D and E from (3.5). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|--|---------------------------|---------------------------|---------------------------|---------------------------|---|
| Panel A: Regressions include applications to job postings mentioning "equal opportunity" | | | | | |
| Nonbinary Pronouns | -0.037^{**} (0.017) | -0.041^{**} (0.018) | -0.036^{**} (0.016) | -0.038^{**} (0.018) | -0.227 (0.189) |
| Binary Pronouns | -0.048^{*} (0.026) | -0.049* (0.027) | -0.051^{**} (0.026) | -0.054^{**} (0.027) | -0.067 (0.120) |
| Observations | 1644 | 1644 | 1644 | 1644 | 342 |
| Panel B:Regressions include appli | cations to job p | ostings mention | ing LGBTQ | | |
| Nonbinary Pronouns | -0.040* | -0.048* | -0.045** | -0.048* | -0.191 |
| | (0.023) | (0.026) | (0.023) | (0.026) | (2.609) |
| Binary Pronouns | -0.015 (0.032) | -0.013 (0.035) | -0.008 (0.033) | -0.018 (0.034) | $\begin{array}{c} 0.106 \\ (1.891) \end{array}$ |
| Observations | 936 | 936 | 936 | 936 | 178 |
| Panel C: Regressions include appl | lications to job p | postings mentior | ning small busin | ness | |
| Nonbinary Pronouns | -0.078^{***} (0.026) | -0.077^{***} (0.029) | -0.069^{***} (0.026) | -0.068^{**} (0.029) | -0.259 (0.182) |
| Binary Pronouns | $0.056 \\ (0.040)$ | $0.056 \\ (0.042)$ | $0.033 \\ (0.039)$ | $0.036 \\ (0.040)$ | $0.026 \\ (0.238)$ |
| Observations | 798 | 798 | 798 | 798 | 136 |
| Panel D: Regressions include appl | lications to job p | postings mentior | ning none of the | e above | |
| Nonbinary Pronouns | -0.056^{***} (0.009) | -0.056^{***} (0.010) | -0.057^{***} (0.009) | -0.057^{***} (0.010) | -0.268 (0.359) |
| Binary Pronouns | -0.016 (0.014) | -0.015 (0.014) | -0.013 (0.014) | -0.014 (0.014) | -0.079 (0.106) |
| Observations | 5600 | 5600 | 5600 | 5600 | 1056 |
| Panel E: Regressions include all a | applications | | | | |
| Nonbinary Pronouns | -0.057^{***} (0.009) | -0.057^{***} (0.010) | -0.059^{***} (0.009) | -0.058^{***} (0.010) | -0.270^{***} (0.047) |
| Nonbinary \times Equal Opportunity | $0.026 \\ (0.025)$ | $0.030 \\ (0.025)$ | 0.031 (0.025) | 0.031 (0.025) | 0.054 (0.108) |
| Nonbinary \times LGBTQ | -0.005 (0.032) | -0.005 (0.031) | -0.006 (0.031) | -0.005 (0.031) | 0.023 (0.140) |
| Nonbinary \times Small Business | -0.024 (0.027) | -0.029 (0.026) | -0.021 (0.027) | -0.024 (0.027) | 0.100 (0.126) |
| Binary Pronouns | -0.020 (0.014) | -0.018 (0.014) | -0.016 (0.014) | -0.016 (0.014) | -0.084 (0.064) |
| Binary \times Equal Opportunity | -0.058^{*} (0.035) | -0.058 (0.036) | -0.066* (0.034) | -0.060* (0.035) | -0.216 (0.174) |
| Binary \times LGBTQ | 0.056 (0.052) | 0.047 (0.050) | 0.060 (0.051) | 0.047 (0.050) | 0.171 (0.219) |
| Binary \times Small Business | 0.083* | 0.095** | 0.074^{*} | 0.080* | -0.137 |
| | (0.044) | (0.044) | (0.042) | (0.043) | (0.175) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls Firm Controls Job Posting FE | | Х | Х | X X | X X X |

Table 14: Estimates of Discrimination Against Applicants who Disclose Pronouns: by Job Posting Text

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panels A to D are derived from the logistic regression described in equation (1) with different data subsets; for Panels E and F from (3.6). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|--|--------------------------|---|--------------------|--------------------|----------------------|
| Nonbinary Pronouns | -0.003 | -0.017 | -0.018 | -0.016 | -0.111 |
| | (0.027) | (0.025) | (0.025) | (0.025) | (111.197) |
| Nonbinary \times Implied Male | 0.003 | 0.003 | 0.004 | 0.004 | 0.025 |
| | (0.016) | (0.016) | (0.016) | (0.016) | (0.517) |
| Nonbinary \times Republican | -0.036^{**} | -0.037^{**} | -0.039^{**} | -0.038^{**} | -0.151 |
| | (0.016) | (0.016) | (0.016) | (0.016) | (192.454) |
| Nonbinary \times High Customer Facing | -0.045^{*} | -0.028 | -0.032 | -0.030 | -0.127 |
| | (0.024) | (0.022) | (0.022) | (0.022) | (254.807) |
| Nonbinary \times Low Customer Facing | 0.003 | -0.036^{*} | -0.040^{**} | -0.038^{**} | -0.204 |
| | (0.022) | (0.019) | (0.019) | (0.019) | (647.954) |
| Nonbinary \times Male Dominated | -0.059^{**} (0.023) | $0.001 \\ (0.023)$ | $0.006 \\ (0.023)$ | $0.003 \\ (0.023)$ | 0.055 (29.927) |
| Nonbinary \times Female Dominated | $0.005 \\ (0.023)$ | $0.019 \\ (0.021)$ | $0.024 \\ (0.021)$ | $0.022 \\ (0.021)$ | 0.107 (121.227) |
| Nonbinary \times Relevant Experience | -0.005 | -0.005 | -0.007 | -0.007 | -0.020 |
| | (0.007) | (0.007) | (0.007) | (0.007) | (5.286) |
| Nonbinary \times Equal Opportunity | $0.025 \\ (0.025)$ | $\begin{array}{c} 0.030 \\ (0.025) \end{array}$ | $0.028 \\ (0.025)$ | $0.031 \\ (0.025)$ | 0.047 (21.474) |
| Nonbinary \times LGBTQ | $0.000 \\ (0.032)$ | -0.005 (0.031) | -0.002 (0.032) | -0.005 (0.031) | 0.011 (1.006) |
| Nonbinary \times Small Business | -0.025 | -0.031 | -0.025 | -0.026 | 0.087 |
| | (0.027) | (0.026) | (0.026) | (0.026) | (97.532) |
| Binary Pronouns | -0.028 | -0.042 | -0.044 | -0.043 | -0.205 |
| | (0.036) | (0.034) | (0.034) | (0.034) | (511.021) |
| Binary \times Implied Male | 0.003 | 0.001 | 0.000 | 0.001 | -0.048 |
| | (0.024) | (0.024) | (0.024) | (0.024) | (46.467) |
| Binary \times Republican | -0.024 | -0.022 | -0.019 | -0.018 | -0.055 |
| | (0.023) | (0.023) | (0.023) | (0.023) | (46.835) |
| Binary \times High Customer Facing | 0.001 | 0.027 | 0.028 | 0.030 | 0.211 |
| | (0.036) | (0.036) | (0.036) | (0.036) | (663.685) |
| Binary \times Low Customer Facing | 0.066^{*} | 0.022 | 0.027 | 0.027 | 0.081 |
| | (0.034) | (0.030) | (0.030) | (0.030) | (70.632) |
| Binary \times Male Dominated | -0.038 (0.032) | 0.023 (0.034) | 0.020 (0.033) | 0.018 (0.034) | $0.115 \\ (169.281)$ |
| Binary \times Female Dominated | -0.014 (0.031) | 0.011 (0.031) | 0.007 (0.031) | $0.005 \\ (0.031)$ | $0.037 \\ (10.897)$ |
| Binary \times Relevant Experience | 0.007 | 0.006 | 0.009 | 0.008 | 0.031 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (8.338) |
| Binary \times Equal Opportunity | -0.048 | -0.058 | -0.061* | -0.060* | -0.215 |
| | (0.037) | (0.036) | (0.035) | (0.036) | (840.489) |
| Binary \times LGBTQ | 0.037 | 0.046 | 0.046 | 0.044 | 0.142 |
| | (0.051) | (0.051) | (0.050) | (0.050) | (304.062) |
| Binary \times Small Business | 0.101^{**} | 0.099^{**} | 0.082^{*} | 0.085^{*} | -0.130 |
| | (0.045) | (0.045) | (0.043) | (0.044) | (316.530) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls Firm Controls Job Posting FE | | Х | X | X X | X X X |

Table 15: Estimates of Discrimination Against Applicants who Disclose Pronouns: All Interactions (Indicator Variables)

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Results are derived from the logistic regression described in equation (4). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | (A) | (B) | (C) | (D) | (E) |
|--|---------|---------|---------|---------|---------|
| Nonbinary Pronouns | 0.038 | -0.007 | -0.004 | -0.004 | -0.132 |
| | (0.045) | (0.040) | (0.040) | (0.040) | (0.188) |
| Nonbinary \times Implied Male | 0.002 | 0.003 | 0.004 | 0.004 | 0.023 |
| | (0.016) | (0.016) | (0.016) | (0.016) | (0.075) |
| Nonbinary \times Vote Share | -0.124* | -0.093 | -0.097* | -0.097 | -0.338 |
| | (0.070) | (0.060) | (0.059) | (0.059) | (0.283) |
| Nonbinary \times O*NET Score | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) |
| Nonbinary \times Sex Difference | 0.028* | 0.005 | 0.005 | 0.005 | 0.027 |
| | (0.015) | (0.013) | (0.013) | (0.013) | (0.062) |
| Nonbinary \times Relevant Experience | -0.006 | -0.006 | -0.007 | -0.007 | -0.013 |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.032) |
| Nonbinary \times Equal Opportunity | 0.024 | 0.029 | 0.027 | 0.030 | 0.049 |
| | (0.025) | (0.025) | (0.025) | (0.025) | (0.111) |
| Nonbinary \times LGBTQ | 0.000 | -0.007 | -0.004 | -0.007 | 0.018 |
| | (0.032) | (0.031) | (0.031) | (0.031) | (0.140) |
| Nonbinary \times Small Business | -0.026 | -0.030 | -0.024 | -0.025 | 0.098 |
| | (0.027) | (0.026) | (0.027) | (0.027) | (0.125) |
| Binary Pronouns | 0.050 | -0.005 | -0.006 | -0.009 | -0.112 |
| | (0.068) | (0.058) | (0.057) | (0.058) | (0.299) |
| Binary \times Implied Male | 0.004 | 0.002 | 0.000 | 0.001 | -0.042 |
| | (0.024) | (0.024) | (0.024) | (0.024) | (0.109) |
| Binary \times Vote Share | -0.096 | -0.043 | -0.035 | -0.036 | -0.227 |
| | (0.097) | (0.089) | (0.088) | (0.089) | (0.400) |
| Binary \times O*NET Score | -0.001 | 0.000 | 0.000 | 0.000 | 0.002 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.003) |
| Binary \times Sex Difference | 0.017 | 0.001 | 0.002 | 0.002 | -0.018 |
| | (0.020) | (0.020) | (0.020) | (0.020) | (0.087) |
| Binary \times Relevant Experience | 0.007 | 0.006 | 0.009 | 0.008 | 0.024 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.047) |
| Binary \times Equal Opportunity | -0.051 | -0.058 | -0.061* | -0.060* | -0.224 |
| | (0.036) | (0.036) | (0.035) | (0.036) | (0.182) |
| $Binary \times LGBTQ$ | 0.042 | 0.046 | 0.047 | 0.045 | 0.163 |
| | (0.051) | (0.051) | (0.050) | (0.050) | (0.220) |
| Binary \times Small Business | 0.091** | 0.095** | 0.079* | 0.081* | -0.151 |
| | (0.044) | (0.045) | (0.043) | (0.044) | (0.173) |
| Observations | 7970 | 7970 | 7970 | 7970 | 1586 |
| Resume Controls | | Х | | Х | Х |
| Firm Controls | | | Х | Х | Х |
| Job Posting FE | | | | | Х |

Table 16: Estimates of Discrimination Against Applicants who Disclose Pronouns: All Interactions (Continuous Variables)

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Results are derived from the logistic regression described in equation (4). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.

| | Nonbinary Pronouns | Binary Pronouns | | | | |
|--|---|---|--|--|--|--|
| Panel A: Logistic coefficient estimates | | | | | | |
| Coefficient Estimate | -0.054^{***} (0.008) | -0.017 (0.013) | | | | |
| Panel B: Heteroskedastic logistic coef | Panel B: Heteroskedastic logistic coefficient estimates | | | | | |
| Total Estimate | -0.056^{***} (0.008) | -0.016 (0.013) | | | | |
| Levels Estimate | -0.053^{**} (0.021) | -0.032 (0.035) | | | | |
| Variance Estimate | -0.004 (0.020) | $\begin{array}{c} 0.016 \\ (0.034) \end{array}$ | | | | |
| Panel C: Tests | | | | | | |
| Overidentification test p-value $(X_i \text{ coefficient ratios are equal} for treatment and control)$ | 0.953 | 0.969 | | | | |
| Standard deviation of unobservables (treatment / control) | 0.981 | 1.086 | | | | |
| S.D. test p-value (ratio of standard deviations $= 1$) | 0.881 | 0.654 | | | | |
| Observations | 7970 | 7970 | | | | |
| Resume Controls Firm Controls Job Posting FE | Х | Х | | | | |

Table 17: Heteroskedastic Logistic Discrimination Estimates (Neumark's Bias Correction)

Note: This table reports average marginal effects associated with disclosing nonbinary "they/them" pronouns and binary "he/him" or "she/her" pronouns congruent with name-implied sex, compared to not disclosing pronouns. Panel A is derived from logistic regression described in equation (1) with resume controls; Panel B is derived from a heteroskedastic version of the same logistic regression and decomposed as described in equation (5). The dependent variable is an indicator variable which equals 1 if the applicant received a positive employer response. Standard errors are clustered at the firm level for all regressions, and reported in parentheses. Stars indicate statistical significance: *** 1% level, ** 5% level, * 10% level.