Perceived Labor Market Discrimination and Job Search among U.S. First- and Second-Generation Immigrants

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October 20, 2026

Abstract

This paper investigates the relationship between perceived discrimination and job search among first- and second-generation immigrants. We elicit beliefs about discrimination in two domains, the current workplace and the job search process. We also conduct an information provision experiment to assess whether population-level earnings from the U.S. Census shift beliefs and job search. We find that both first- and second-generation immigrants perceive labor market disadvantages relative to otherwise identical native-born workers, with larger perceived gaps among first-generation immigrants, younger immigrants, recent arrivals, and less educated workers. Both groups also overestimate the native–immigrant earnings gap in their occupation. Providing respondents with objective occupation-specific earnings information reduces perceived discrimination among those with more pessimistic prior beliefs and shifts beliefs beyond earnings to promotion prospects and job-search outcomes. Finally, perceived discrimination is positively associated with job-search effort, and instrumental-variables estimates suggest that belief changes translate into more job applications and interviews in the months following the intervention. The findings suggest that immigrants respond to perceived discrimination by intensifying job search rather than becoming discouraged.

JEL Codes: J61, J7, D83, C93, F22

Keywords: labor markets, discrimination, immigrants, field experiments, beliefs.

1 Introduction

Immigration remains one of the most debated economic and social issues in the United States. Much of the discussion has focused on how immigration affects native-born workers, firms, innovation, and public finances (e.g., Borjas, 1989; Ottaviano and Peri, 2012; Abramitzky and Boustan, 2022; Bernstein et al., 2022; Doran et al., 2022; Borjas, 2026; Abramitzky et al., 2026). While labor market discrimination has been extensively studied (e.g., Neumark, 2018; Collins and Zimran, 2023; Cortés et al., 2023; Mason, 2023; Coffman et al., 2024; Gagnon et al., 2025; Akee and Jones, 2026), comparatively little evidence exists on how immigrants perceive their labor market opportunities (tangentially related studies include Candelo et al., 2017; Schumacher et al., 2023; Alfonsi et al., 2026). These perceptions matter because workers' beliefs about discrimination are likely to shape job search.

This paper studies perceived discrimination among first- and second-generation immigrants in the United States. We address two questions. First, what are immigrants' perceptions of labor market discrimination? Second, how do those perceptions affect job search behavior? To answer these questions, we conduct an information provision experiment. We elicit respondents' beliefs about their own labor market outcomes, their beliefs about the outcomes of an otherwise identical native-born, non-immigrant worker, and their beliefs about native–immigrant earnings gaps within their occupation. We then provide randomly assigned respondents with objective occupation-specific earnings information derived from Census data and measure both belief updating and subsequent job search behavior. Throughout the paper, first-generation immigrants are individuals born outside the United States, while second-generation immigrants are U.S.-born individuals with at least one foreign-born parent. Distinguishing between these groups is important because prior research suggests that labor market experiences, economic outcomes, and assimilation may differ across immigrant generations (e.g., Algan et al., 2010; Abramitzky and Boustan, 2022).

Our findings can be grouped into three broad themes. First, both first- and second-generation immigrants perceive meaningful labor market disadvantages relative to otherwise identical native-born, non-immigrant workers. These perceptions are strongest among first-generation immigrants but remain economically and statistically significant among the children of immigrants. We also document substantial heterogeneity in perceived discrimination. Perceived gaps tend to be larger among younger immigrants, recent arrivals, workers with lower levels of education, and immigrants living outside metropolitan areas, suggesting that labor market experience, integration, and information may play an important role in shaping beliefs. In addition, both first- and second-generation immigrants hold pessimistic beliefs about average earnings gaps in their occupation. First-generation immigrants overestimate the native–immigrant earnings gap by approximately 14 percentage points, while second-generation immigrants overestimate it by roughly 4 percentage points.

Second, and importantly for policy, perceptions of discrimination are responsive to information. Providing respondents with objective occupation-specific earnings data causes those with more pessimistic prior beliefs to revise their perceptions of discrimination downward. Notably, the intervention affects beliefs well beyond the earnings outcome directly observed in the information treatment. Information about earnings gaps also shifts beliefs about promotion prospects and job-search outcomes, consistent with respondents updating a broader perception of labor market disadvantage.

Third, perceived discrimination is positively associated with job search effort. Immigrants who perceive larger disadvantages do not appear to withdraw from the labor market. Instead, they engage in more intensive job search. Instrumental-variables estimates exploiting experimental variation in beliefs suggest that changes in perceived discrimination may translate into increased applications and interviews over the subsequent five months. While these estimates are imprecisely estimated, they point in the same direction as the observational evidence.

Our paper speaks to three literatures. First, we contribute to the literature on discrimination (e.g., Bertrand and Duflo, 2017; Darity, 2022; Chelwa et al., 2022; Bohren et al., 2025; Abramitzky et al., 2026; Francis et al., 2026), particularly in labor markets (e.g., Neumark, 2018; Mason, 2023). Most existing work measures discrimination from the employer side (e.g., Bertrand and Mullainathan, 2004; Oreopoulos, 2011). We instead focus on workers' perceptions of discrimination and the behavioral consequences of those perceptions. In doing so, we contribute to a growing literature studying how beliefs about discrimination affect economic behavior (Angeli et al., 2023; Ruebeck, 2025; Gagnon et al., 2025; Lepage et al., 2025). Our analysis contributes in three main dimensions. We show that both first- and second-generation immigrants in the United States perceive labor market discrimination, eliciting these perceptions separately for discrimination at the hiring stage (Angeli et al., 2023; Haaland and Roth, 2023) and within the workplace (Glover et al., 2017; Ruebeck, 2025; Gagnon et al., 2025). We also introduce a measure that elicits immigrants' and their children's beliefs about their own labor market outcomes alongside those of an otherwise identical native-born, non-immigrant worker, allowing us to measure an ex-ante treatment effect of nativity by adapting counterfactual belief elicitation methods (Wiswall and Zafar, 2015; Arcidiacono et al., 2020; Fuster and Zafar, 2023) to the study of discrimination.[1] Finally, we study how members of disadvantaged groups respond to perceived discrimination over a short- to medium-run horizon by linking these beliefs to labor market behavior over the subsequent five months and exploiting our information-provision experiment for identification, extending a literature that has largely focused on single application decisions or within-session effort choices.[2]

Second, we contribute to the literature on belief elicitation and information provision (e.g., Danz et al., 2022; Haaland et al., 2023; Stantcheva, 2023; Haaland et al., 2025), particularly in labor market and education contexts (e.g., Chakravorty et al., 2024; Coffman et al., 2024; Cortés et al., 2023; Arcidiacono et al., 2020, 2025). Our design follows Wiswall and Zafar (2015) in eliciting beliefs at two levels—about population aggregates and about the respondent's own outcomes—and in using the error in the former as an experimental shock to the latter. Unlike that literature, however, we elicit an identity-based rather than a choice-based counterfactual: respondents evaluate how their outcomes would differ if they were otherwise identical native-born workers, allowing us to measure an ex-ante treatment effect of an ascriptive characteristic rather than of a decision. The information intervention also serves a broader purpose than generating exogenous variation in beliefs. By providing respondents with objective information about occupation-specific immigrant–native earnings

[1] This is similar in spirit to Lepage et al. (2025) who focus on responses through college-major choice.

[2] Related laboratory experiments examine responsiveness within a single session or application episode through blind versus non-blind evaluation (Ruebeck, 2025), address visibility (Angeli et al., 2023), or explicit discriminatory wage schemes (Gagnon et al., 2025).

gaps, we test whether perceptions of discrimination are shaped by aggregate group disparities, complementing Haaland and Roth (2023). Finally, although the intervention concerns annual earnings alone, it affects beliefs about promotion prospects and job-search outcomes, suggesting that respondents update a broader latent perception of disadvantage rather than isolated domain-specific beliefs.

Third, we contribute to the literature on immigrant assimilation. Existing work has primarily focused on objective outcomes such as wages, employment, and intergenerational mobility (e.g., Chiswick, 1978; Borjas, 1985; Algan et al., 2010; Hermansen et al., 2025). We provide a subjective counterpart by examining how immigrants perceive their economic position relative to native-born workers. Our findings suggest a notable disconnect between objective and subjective outcomes among the second generation. Consistent with prior work (e.g., Abramitzky et al., 2021), objective data indicate that children of immigrants often perform similarly to, or better than, children of native-born parents. Yet many second-generation respondents continue to perceive meaningful labor market disadvantages and anticipate discrimination in both hiring and workplace outcomes.

The remainder of the paper proceeds as follows. Section 2 describes the experimental design and data collection. Section 3 presents the main empirical results. Section 4 concludes.

2 Study Design

2.1 Sample

We recruited 1,168 first- and second-generation workers through the National Opinion Research Center's (NORC) AmeriSpeak panel. AmeriSpeak is a probability-based panel designed to be representative of the U.S. household population and has been used by comparable studies (e.g., Haaland and Roth, 2023). Table 5 in the online appendix provides summary statistics for the sample. Thirty-five percent are first-generation, 46 percent are women, 55 percent have completed college or above, and 36 percent have a household income below $60,000. On average, participants are 43.81 years old and 62 percent live in households with three or more people. The sample is broadly comparable to first- and second-generation immigrants in the U.S., with characteristics that generally lie between those of the two groups in the American Community Survey (ACS).[3] Compared with the overall U.S. population, the sample is more educated, has higher household income, and has fewer Black and Hispanic individuals. Where relevant, we use survey weights provided by the panel. Table 5 confirms that participants in the treatment and control groups are balanced in terms of observable characteristics.

[3]For example, first-generation immigrants in the U.S. are on average 48 years old. Sixty-five percent have less than a college education, 36-40 percent have a household income below $60,000, and 58 percent live in households of three or more people. Data for second-generation immigrants are not readily available, but this group is likely to resemble the overall U.S. population more closely than first-generation immigrants.

2.2 Study Waves and Timing

The study consisted of three waves, which were fielded during the period from July 2024 to June 2025. The information provision experiment was conducted in wave 2, prior and posterior beliefs were collected in waves 1 and 2, and job search outcomes were collected in wave 3. Wave 1 included a pilot experiment, so subjects were re-randomized prior to the start of wave 2 to mitigate any risk of carry-over.[4] Table 5 in the online appendix confirms that wave 1 beliefs are balanced across treatment assignment in wave 2. Overall, it took participants 18 minutes to complete all waves. They were paid at a rate of $30 per hour. Figure 2 in the online appendix shows the sample size for each wave. Attrition is approximately 17 percent, but not differential by treatment status.

2.3 Information Provision Experiment

In the information provision experiment, respondents were randomly assigned to a treatment or a control group. The treatment group was shown a bar chart reporting the average annual salary for their occupation based on U.S. Census data. Figures 3 and 4 in the online appendix illustrate the information shown to respondents working in sales who were first- and second-generation immigrants, respectively. The figures varied according to the respondent's occupation and immigrant status. The chart displayed average annual salaries for two groups of workers: native-born, non-immigrant workers and workers sharing the respondent's immigrant status (i.e., first- or second-generation workers). Accompanying text below the chart highlighted the salary gap in both dollar and percentage terms. After viewing the chart, respondents completed a comprehension check. Respondents who answered incorrectly were required to review the information before proceeding.

The control group did not receive any salary information and instead answered unrelated demographic questions. The verbatim questionnaires – including the experiment protocol, timeline, and flow of information – are available at this link.

2.4 Beliefs about Average Population-Level Earnings

The first class of beliefs, which we term Z_k, is about average population-level earnings in the respondent's occupation. These beliefs were elicited for two types of workers, k, native-born, non-immigrant workers and workers of the same immigrant group as the respondent, that is, first- or second-generation workers, respectively. These beliefs were only elicited prior to the intervention. The exact framing of the question was as follows:[5]

> *We want to ask what you think about the typical annual salary for two groups of working-aged adults with the same job as you:*
>
> 1. *Group One: People who were born in the United States and whose parents were also born in the United States, also known as, "native born" Americans.*

[4] The pilot experiment provided information on percent employed (including full-time), average annual salary irrespective of occupation, and average number of hours worked in a week for native-born, first-generation, and second-generation workers.

[5] See W2PRE_POP3 on page 6 of the wave 2 questions at this link.

2. *Group Two: People who were not born in the United States, also known as, "immigrant" Americans* [`if the respondent was first-generation`]

   OR

   People who were born in the United States and for whom at least one parent was born outside of the United States, also known as, "second generation" Americans [`if the respondent was second-generation`].

These beliefs enable us to measure the extent to which individuals have accurate expectations about the population-level earnings gap for their occupation. It follows that these beliefs give a measure of the size of the information shock that a treated individual receives. The gap between this prior belief and the truth, therefore, serves as the instrument we exploit in the analysis in Section 3.

2.5 Self- and Counterfactual Beliefs

The second class of beliefs, which we term X_j, represents the difference between self-beliefs about one's own labor market outcomes (one set of questions) and one's beliefs about those same outcomes for an otherwise identical native-born, non-immigrant worker (a different set of questions). j indexes the outcome over which such beliefs were elicited, specifically, current wage, current hours worked, promotion probability, future wage, job arrival, or job search wage. These beliefs cover two distinct domains of perceived discrimination, namely the current workplace and the job search process. These beliefs were elicited both before and after the intervention, denoted X_j^{pre} and X_j^{post}, respectively. We elaborate in Section 2.7.

The exact framing of the questions for self-beliefs was as follows:[6]

> *Now, we want to ask how you think things will be if you stay with your current employer in the future.*
>
> *Q1. What do you think is the chance of getting promoted by your current employer within 1 year?*
> *Q2. What do you think your annual salary will be in the next 5 years, if you stay with your current employer? By "annual salary," we mean "pre-tax annual salary."*
> *Q3. Now, we want to ask how you think things will be if you want to find a new job. Suppose you want to find a similar job to what you have now but with a new employer. How many applications do you think you will need to send out before getting a callback for an interview?*
> *Q4. Suppose you actively search for new jobs in the next year, what would you expect the average annual salary to be among all the job offers you got?*

For the otherwise identical counterfactual native-born, non-immigrant worker, the questions were framed similarly except that the preamble stated the following:[7]

[6] See part 2 on page 3 of the wave 2 questions at this link.
[7] See part 3 on pages 4-5 of the wave 2 questions at this link.

Consider the following hypothetical situation. Someone is just the same as you in terms of their gender, race and ethnicity, education level, work experience, ability to speak English, and ability to work EXCEPT that this person and this person's parents are born in the U.S. This person has the same job with the same employer as you have now.

Please try your best to tell us what you think this person's likely job situation would be. There are no right or wrong answers.

Q1. What would this person's annual salary be?

Q2. How many hours would this person typically work in a week?

Q3-Q6. `Similar to self-beliefs stated previously.`

2.6 Job Search Behavior

Job search behavior, which we term Y_m, was measured in wave 3. m indexes one of seven outcomes, which were chosen to capture successive stages of the job search process.[8] Questions 1 and 2 measure low-cost *preparatory* search activities, such as browsing job postings, updating or posting a resume, and discussing potential career changes or promotions. Questions 3 and 4 measure higher-cost *active* search activities, which are characterized by direct engagement with the labor market. Together, Questions 1–4 capture both the extensive and the intensive margins. Questions 5–7 measure *realized* search outcomes, recorded as counts rather than indicators, including applications submitted, interviews completed, and job offers received.

These measures also differ in their recall windows. Questions 1–4 are cumulative since January 2025, encompassing the 5-month period following the survey and information-provision experiment. Questions 5–7 instead refer only to the two months preceding the survey. The longer recall window for Questions 1–4 ensures coverage of the full post-intervention period, allowing sufficient time for behavioral responses to emerge. The shorter window for Questions 5–7 is intended to limit recall error, which is likely to be more severe for these outcomes because respondents are asked to report counts rather than binary indicators.

The main questions were framed as follows:

Q1. Since January 2025, have you done any of the following? Please select all that apply. 01 Looked at job postings online, ..., 04 Updated or posted your resume (online or elsewhere), ..., 05-07 Talked about career changes or promotions with ...
Q2. Same as above but in terms of time spent on average per day
Q3. Since January 2025, have you done any of the following to actively search for a job? Please select all that apply. 01 Contacted an employer ..., 02 Contacted an employment agency ..., ..., 05 Applied to a job posting, 06 Attended a career fair, ...
Q4. Same as above but in terms of time spent on average per day
Q5. In the last two months, how many potential employers, if any, did you apply to for employment? Please include all applications made in person, online, or

[8] See Section "C. Job Search Behavior" at this link.

through other direct methods. If you cannot recall the exact number, please make your best guess.
Q6. In the last two months, how many job interviews did you have, including any informal interviews? If you cannot recall the exact number, please make your best guess.
Q7. In the last two months, how many job offers have you received? Please include all offers, including those made informally and those made by contacts not solicited by you. If you cannot recall the exact number, please make your best guess.

2.7 Mechanisms

The conceptual framework centers on two questions. First, what determines beliefs about labor market discrimination among immigrants? Second, how does perceived discrimination affect job search behavior? To answer the first question, we assess how randomized information provision affects beliefs. We also look at how baseline beliefs vary with pre-determined demographic characteristics (e.g., immigrant status, gender, and age), which can be thought of as proxies for labor market experience and learning about discrimination (a type of assimilation).

To answer the second question, we assess how beliefs impact job search. These beliefs are measured on two dimensions—the current workplace and the job search process. Theoretically, both types of beliefs have ambiguous implications for job search intensity. Consider first beliefs about the current workplace. If immigrants believe this penalty is structural across the labor market, the effect on their job search might be minimal, as they expect similar unfair treatment in any future role. Conversely, if they view this discrimination as tied to their specific employer, the resulting sense of unfairness and decreased work morale could erode employer attachment, thereby increasing job turnover and motivating them to search for new jobs (e.g., Daldy et al., 2013; Gagnon et al., 2025; Ruebeck, 2025).

Next, consider beliefs about the job search process. As discussed in Angeli et al. (2023), shifting perceived job-search discrimination, or the expected success rate, can have a non-monotonic effect on application effort. A decrease in the expected success rate—the callback probability in our survey—generates a substitution effect: it diminishes the expected return to a marginal application and can discourage job seekers, leading them to submit fewer applications. This mechanism aligns with evidence that interventions reducing informational frictions, such as blind hiring procedures or clearer signals about the hiring bar, can increase application rates among disadvantaged groups (e.g., Angeli et al., 2023; Coffman et al., 2024; Boring et al., 2025). However, perceived discrimination can also lead to an income effect, i.e., a pessimistic job seeker must exert more effort or increase their volume of costly applications in order to reach a target (Abebe et al., 2025). That target may be a given number of callbacks, a given number of interview opportunities, or an offer.[9] Related to this, Pager

[9]This argument is the job-search analogue of the income effect in the static labor supply model, and it does not require non-standard preferences. A stronger version of the argument invokes reference-dependent preferences, under which search effort responds to the distance between current and target outcomes rather than to the marginal return alone; see DellaVigna et al. (2017) for evidence from job search, and Camerer et al. (1997) and Fehr and Goette (2007) for the literature on income targeting in labor supply.

and Pedulla (2015) provide evidence that racial minorities cast a wider net in their job search than comparable whites, and argue that this broad search strategy is an adaptation to labor market discrimination. Taken together, the ultimate impact of perceived discrimination on job search behavior remains theoretically ambiguous.

3 Results

3.1 Perceived Discrimination and Demographic Heterogeneity

We start by documenting immigrants' perceived discrimination, as measured by X_j^{pre}. Specifically, X_j^{pre} captures pre-intervention beliefs about how an immigrant would be treated relative to an otherwise identical native-born worker in both the current workplace and the job search process.

Panel A of Table 1 reports perceived discrimination among first-generation workers. In their current workplace, respondents believe that an otherwise identical native-born worker would earn 28.2 percent more in their current job, work 0.225 more hours per week, be 8.36 percentage points more likely to be promoted, and earn 22.9 percent more five years into the future. All gaps are statistically different from zero at the 1 percent level except for current hours worked.

Similar perceptions emerge during job search. First-generation workers believe that an otherwise identical native-born worker would need to submit 2.24 fewer CVs to obtain an interview callback and would receive job offers paying wages that are 8 percent higher. Both perceived gaps are statistically significant at the 1 percent level. Beyond average beliefs, all medians are greater than or equal to zero. In particular, the median for the current wage gap of first-generation respondents is 11.1 percent, and 62.3 percent of individuals believe they face discrimination, that is, $\Pr(X_1^{pre} > 0) = 62.3\%$.

Panel B of Table 1 reports corresponding results for second-generation workers. All gaps are statistically different from zero at the 1 percent level, except for current hours worked and promotion probability. The final column of Panel A reports two-sample t-tests of equal means between the two groups. Second-generation respondents perceive significantly smaller gaps than first-generation immigrants with respect to their current and future wages.

To summarize these six measures in a single score, we construct a composite index, $\bar{X}^{pre}$, based on the first principal component. This approach helps reduce dimensionality and increase statistical power in our subsequent analysis. Specifically, we perform principal component analysis (PCA) using the six pre-intervention measures, X_j^{pre}. $\bar{X}^{pre}$ is thus defined as the weighted sum of the standardized variables as follows:[10]

$$\bar{X}^{pre} = \sum_{j=1}^{6} f_j \frac{X_j^{pre}}{sd(X_j^{pre})} \equiv \sum_{j=1}^{6} w_j X_j^{pre} \tag{1}$$

Later, using the same weights w_j, we construct the posterior perceived discrimination

[10]The weights are shown in Table 6 in the online appendix.

index $\bar{X}^{post}$ as follows:

$$\bar{X}^{post} = \sum_{j=1}^{6} w_j X_j^{post} \tag{2}$$

As a first pass at answering the question of what drives perceived discrimination, Figure 5 in the online appendix shows how perceived discrimination, measured by our normalized PCA index, varies with demographic characteristics other than first- or second-generation status. Several patterns point to perceived discrimination being strongest among immigrants who are less integrated into U.S. labor markets and institutions. Young first-generation immigrants, recent arrivals, workers with less than a high school education, and first-generation immigrants living outside metropolitan areas all report significantly larger perceived gaps.[11] The one notable exception concerns gender: among first-generation immigrants, men report larger perceived gaps than women ($p = 0.08$), whereas the opposite pattern holds among second-generation immigrants ($p = 0.02$). These relationships are stable across survey waves (1 or 2).

3.2 Pessimistic Bias

We next examine immigrants' perceived discrimination with respect to Z_k at baseline. Unlike X_j, which captures beliefs about one's own labor market outcomes, Z_k measures beliefs about earnings gaps at the population level across native-born workers (Z_0) and workers in one's respective immigrant group (Z_1 or Z_2). On average, first-generation workers believe that native-born workers in their occupation earn 20 percent more than workers in their immigrant group. Second-generation workers believe that native-born workers in their occupation earn 10 percent more than workers in their immigrant group.

To assess whether these expectations reflect any bias, we look at the difference between this perceived discrimination (gap) (Z^{pre}) and the true gap (Z^*) revealed in our information provision experiment based on Census data. As reported in column 4 of Table 2, first-generation immigrants overestimate the true gap by 14 percentage points. Second-generation immigrants likewise overestimate the true gap, though the magnitude of the bias is considerably smaller at 4 percentage points.

3.3 How Does Belief Updating Relate to Bias?

As a second pass at answering the question of what drives perceived discrimination, we assess whether and, if so, how randomized information provision shifts beliefs, X_j. We evaluate the relationship between belief updating and the initial bias in perceived population-level wage gaps by estimating the following regression:

$$\underbrace{(X_j^{post} - X_j^{pre})}_{\text{belief revision}} = \phi_{0j} + \phi_{1j} \underbrace{(Z^* - Z^{pre})}_{\text{perceived earnings error}} + C\phi_{cj} + \epsilon_j, \tag{3}$$

[11] The p-values for the gaps are as follows: age ($p = 0.08$), recency/less than ten years ($p = 0.05$), and education ($p = 0.03$).

Table 1: Perceived Discrimination Across First- and Second-Generation Workers

	Panel A: First Generation				
	N	Mean	Std. Dev.	Median	p-value (FG = SG)
X_1^{pre}: Current Wage	281	0.282***	0.487	0.111	0.013**
X_2^{pre}: Current Hours	292	0.225	7.570	0.000	0.711
X_3^{pre}: Promotion Probability	266	8.357***	29.236	0.000	0.164
X_4^{pre}: Future Wage	285	0.229***	0.426	0.056	0.032**
X_5^{pre}: Job Arrival (CV Sent)	284	-2.239***	5.742	0.000	0.225
X_6^{pre}: Job Search Wage	285	0.084***	0.241	0.000	0.362
	Panel B: Second Generation				
	N	Mean	Std. Dev.	Median	
X_1^{pre}: Current Wage	550	0.169***	0.508	0.040	
X_2^{pre}: Current Hours	562	-0.032	7.724	0.000	
X_3^{pre}: Promotion Probability	490	3.880*	26.720	0.000	
X_4^{pre}: Future Wage	547	0.141***	0.365	0.000	
X_5^{pre}: Job Arrival (CV Sent)	554	-1.555***	5.599	0.000	
X_6^{pre}: Job Search Wage	547	0.063***	0.217	0.000	

Notes: This table presents summary statistics for perceived discrimination gaps across different labor market outcomes, weighted by the Wave 2 survey weights. Gaps are calculated as the difference between perceived outcomes for minorities versus non-minorities, and are winsorized at the 5th and 95th percentiles. Stars indicate statistical significance from t-tests that the mean equals zero: *** p<0.01, ** p<0.05, * p<0.10. The last column reports the p-value of a two-sample t-test of equal means between first- and second-generation respondents.

where X_j^{post} and X_j^{pre} denote posterior and prior perceived discrimination for measure j, indexing the six variables reported in Table 1. The dependent variable $(X_j^{post} - X_j^{pre})$ thus captures the revision in beliefs from prior to posterior. The term $(Z^* - Z^{pre})$ represents the respondent's error regarding population-level earnings reported in column 4 of Table 2. The vector C includes demographic controls for age, gender, ethnicity, education, marital status, geographic location, homeownership, household size, household income, survey language, and employment status (also see Table 5 in the online appendix).

Figure 1 reports the estimated coefficient ϕ_{1j} for the six outcomes discussed in Section 2.5 across treatment status and immigrant generation. We restrict the sample to valid-intervention cases in which the occupation category used in the information intervention matches the respondent's current occupation in wave 2.[12] The results indicate that

[12]Technical constraints in the survey instrument only allowed us to base the occupation-specific population earnings information on respondents' occupations as reported in the previous wave (2020), rather than on the latest occupation held at the time of the survey and experiment. Because respondents may change occupations between waves, the occupation used in the information intervention does not necessarily coincide

Table 2: Average Gap Between Immigrant Belief and Truth About Annual Earnings

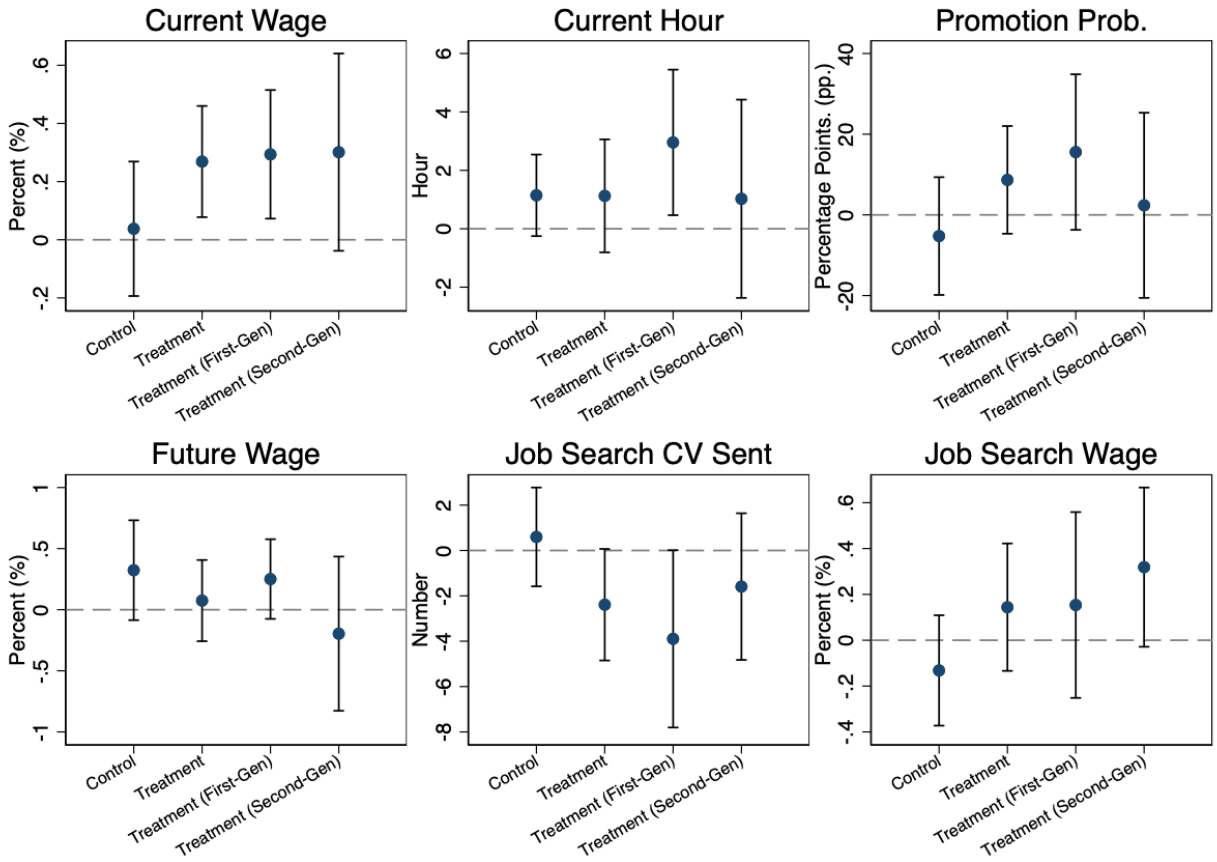
	(1) Native Earnings Z_0	(2) Immigrant Earnings Z_1 or Z_2	(3) Gap Z^{pre}	(4) Error $Z^* - Z^{pre}$	(5) Abs Error $\lvert Z^* - Z^{pre}\rvert$
First Generation	84033	74653	0.20	-0.14***	0.28
	(68686)	(60404)	(0.54)	(0.24)	(0.52)
Second Generation	72767	69754	0.10	-0.04***	0.24
	(72626)	(66974)	(0.95)	(0.19)	(0.93)

Notes: Column (3) reports the mean of the individual proportional gap, $[Z_0 - Z_g]/Z_g$. Column (4) reports the error relative to the occupation-specific benchmark, $Z^* - Z^{pre}$. Column (5) reports the mean of $|Z^* - Z^{pre}|$. The outcomes in Columns (3) and (4) are winsorized at the 5th and 95th percentiles. Means and standard deviations are weighted by the Wave 2 survey weights. Standard deviations are reported in parentheses. Stars in Column (4) indicate significance from a test that the mean error equals zero, using heteroskedasticity-robust standard errors: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. A test of equal mean error (Column (4)) between first- and second-generation workers yields $p < 0.001$.

population-level information shifts individual beliefs, as evidenced by the positive and significant ϕ_{1j} for the treatment group, that is, the second bar for each panel. This suggests that, due to treatment, greater initial overestimation is associated with greater downward revision of perceived discrimination. Stated differently, the more negative and pessimistic one's initial beliefs about population-level earnings, the greater the adjustment to one's priors about perceived discrimination. For example, the third bar of the first panel shows that treated first-generation immigrants who overestimate the population earnings gap by 10 percentage points relative to the true statistic revise their perceived discrimination in current wages downward by 2.9 percentage points, that is, 10.2 percent of the average prior mean gap, or 0.06 standard deviations of the prior belief gap. The magnitude is similar for second-generation respondents. The first bar reports the same coefficient for the control group, which is not statistically distinguishable from zero. Note that this is also the case for the "CV Sent" outcome; however, the effect is in the opposite direction because a more negative gap indicates greater discrimination against immigrants. Specifically, in the third bar of the fifth panel, among immigrants, overestimating the population earnings gap by 10 percentage points is associated with a downward revision in perceived discrimination of 0.39 CVs sent to obtain a callback, approximately 17.4 percent of the mean prior gap and 0.07 standard deviations of its distribution. Overall, a key takeaway is that information shifts perceptions of discrimination in both the current workplace (panels 1–4) and the job search process (panels 5–6). Interestingly, the treatment effect is relatively similar across first- and second-generation respondents(i.e., the third and the fourth bars for each panel).

with the respondent's current occupation at the time of the survey. Approximately 31% of respondents changed occupations since the previous wave.

Figure 1: Perceived Discrimination Change and Population Belief Gap



Notes: The figure reports estimates of parameter ϕ_{1j} in equation (3), along with 95% confidence intervals based on robust standard errors, for various outcomes and respondent groups. Each panel corresponds to one of the six measures of perceived discrimination, X_j, defined in Table 1 and listed in the same order. Within each panel, the first bar shows the coefficient for the control group, i.e. individuals not shown the Census statistics; the second bar shows the coefficient for the treated group. The third bar shows the coefficient for first-generation respondents in the treated group and the fourth bar shows the coefficient for treated second-generation respondents. The sample is restricted to individuals whose current occupation matches the occupation referenced in the occupation-specific salary information treatment, weighted by the Wave 2 survey weights.

3.4 How Does Perceived Discrimination Relate to Job Search?

Finally, we answer the second question in Section 2.7 by exploring the relationship between perceived discrimination and job search. We start with an ordinary least squares (OLS) regression, where the dependent variables, Y_m, are the job search activities described in Section 2.6 and the independent variables are the second class of beliefs (perceived discrimination) described in Section 2.5.

Table 3 reveals some significant associations. Focusing on X_1^{post}, a 100-percentage-point increase in the perceived current wage gap predicts a 14.6 percentage-point increase in the likelihood of engaging in active job search activities such as contacting employers, attending job fairs, or applying for jobs (Column 3). Another gap that is significantly associated with job search is the number of resumes/CVs sent to secure a callback, X_5^{post}. A one-CV decrease in the perceived CV-sent gap predicts a 1.3 percentage points decrease in the likelihood of engaging in preparatory job search activities such as looking at job postings, updating or posting one's resume, or talking about careers with one's social network (Column 1). This represents 1.8 fewer minutes of preparatory job search per day (Column 2), 0.29 fewer applications submitted (Column 5), and 0.03 fewer interviews attended (Column 6). Collectively, these findings suggest that higher perceived discrimination predicts higher job search, though this is not reflected across all measures. In addition, the estimates reported in Table 3 should be interpreted as partial correlations between individual beliefs and job search activity, as the various belief measures are themselves highly correlated.

To address the potential endogeneity that perceived discrimination is correlated with other factors that also affect job search, we exploit the randomized treatment in the information provision experiment (see Section 2.3). We instrument the composite posterior index $\bar{X}^{post}$ with $T \cdot (Z^* - Z^{pre})$, where T represents the dummy for random treatment assignment in wave 2 and $(Z^* - Z^{pre})$ represents the respondent's error regarding population-level earnings as discussed in Section 3.2. The instrument is relevant because, as Figure 1 suggests, the information intervention shifts beliefs. The last row of Table 4 reports a first-stage F-statistic near 10 for columns 1–7. The instrument also meets the exclusion restriction due to randomized treatment. We also control for the composite prior belief, $\bar{X}^{pre}$, and the vector of demographic variables, C, as discussed in Section 3.3.

Table 4 presents three panels. Panel A reports OLS regressions as in Table 3; however, the independent variable is the posterior perceived discrimination index, $\bar{X}^{post}$. Consistent with earlier findings, panel A suggests that higher perceived discrimination is positively associated with all measures of job search effort, at both the extensive and the intensive margins. For example, individuals whose perceived discrimination is one standard deviation higher are 5.3 percentage points more likely to engage in preparatory job search activities, apply to 1.7 additional jobs, and attend 0.2 additional interviews over the preceding two months. We find no significant association between perceived discrimination and offers received.

Panel B reports the reduced-form results of regressing outcomes on the instrument $T \cdot (Z^* - Z^{pre})$ and the prior belief $\bar{X}^{pre}$. Although the instrument's coefficient is statistically insignificant for most job search outcomes, the prior belief about discrimination is strongly and positively correlated with job search intensity, job applications, and interviews attended. This suggests that although the information intervention may not be sufficient to shift individuals' beliefs and job search outcomes approximately five months later, job search

Table 3: OLS of Job Search (Wave 3) on Perceived Discrimination (Wave 2)

	(1) Preparatory Search Any	(2) Preparatory Search Minutes	(3) Active Search Any	(4) Active Search Minutes	(5) Employers Applied	(6) Interviews Attended	(7) Offers Received
X_1^{post}: Current Wage Gap	0.0745	10.18	0.146***	5.833	0.421	0.0994	0.108
	(0.0487)	(6.869)	(0.0518)	(6.187)	(0.507)	(0.109)	(0.112)
X_2^{post}: Current Hour Gap	0.00222	-0.160	-0.00489	0.218	0.0395	0.00560	0.00682
	(0.00333)	(0.525)	(0.00404)	(0.524)	(0.0308)	(0.00814)	(0.0105)
X_3^{post}: Promotion Gap	0.000293	0.321*	0.00174	0.214	0.0152	0.00228	-0.00671**
	(0.00130)	(0.190)	(0.00136)	(0.156)	(0.0135)	(0.00305)	(0.00261)
X_4^{post}: Future Wage Gap	0.121	25.42	0.280*	41.12*	1.108	0.802**	0.186
	(0.158)	(29.65)	(0.144)	(23.12)	(1.215)	(0.327)	(0.322)
X_5^{post}: CV Sent Gap	-0.0126**	-1.779*	-0.00918	-0.966	-0.289***	-0.0323**	0.00138
	(0.00529)	(0.985)	(0.00645)	(0.854)	(0.0749)	(0.0137)	(0.0139)
X_6^{post}: Job Search Wage Gap	-0.305**	-31.95	-0.282*	-17.37	1.484	-0.477	-0.272
	(0.144)	(23.83)	(0.144)	(15.10)	(1.615)	(0.371)	(0.438)
Observations	519	519	519	519	506	507	507
Controls	✓	✓	✓	✓	✓	✓	✓

Notes: Preparatory job search activities include: looked at job postings online, in newspapers, magazines, or on bulletin boards; checked union or professional job listings; updated or posted a resume (online or elsewhere); and discussed career changes or promotions with family, friends, coworkers, or people outside of work. Active job search activities include: contacted an employer directly (in person, online, or by email); contacted an employment agency or career center (including university career services); asked friends, family, coworkers, or teachers about job opportunities; reached out to employees at other companies; applied to a job posting (online, in a newspaper, or from other sources); and attended a career or job fair. The continuous outcome variables in columns 2, 4, 5, 6, and 7 are right-winsorized at the 95th percentile. Regressions are weighted by the Wave 2 survey weights. Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.10.

behavior remains strongly affected by prior perceived discrimination.

Finally, panel C reports the two-stage least squares (2SLS) results. Across specifications, the coefficients are uniformly positive, indicating that greater perceived discrimination is associated with more intensive job search. However, the estimates are generally imprecise, limiting our ability to reject the null of no effect for individual outcomes. The notable exceptions are for the number of applications and interviews attended: a one-standard-deviation increase in perceived discrimination predicts 3.1 additional job applications and 0.8 additional interviews attended (Columns 5 and 6, Panel C).

Table 4: IV Regression of Job Search (Wave 3) on Perceived Discrimination (Wave 2)

	Preparatory Search Any	Preparatory Search Minutes	Active Search Extensive	Active Search Minutes	Employers Applied	Interviews Attended	Offers Received
Panel A: OLS							
$\bar{X}^{post}$	0.053**	11.134***	0.102***	12.015***	1.670***	0.230***	-0.014
	(0.025)	(4.088)	(0.025)	(3.486)	(0.294)	(0.068)	(0.082)
Observations	351	351	351	351	338	339	340
Panel B: Reduced Form							
$T * (Z^* - Z^{pre})$	0.231	4.948	0.190	9.994	3.312**	0.812**	0.310
	(0.221)	(38.368)	(0.246)	(20.565)	(1.447)	(0.370)	(0.363)
$\bar{X}^{pre}$	0.067***	5.704	0.079***	6.216**	1.259***	0.200***	-0.032
	(0.020)	(4.152)	(0.021)	(3.065)	(0.273)	(0.058)	(0.055)
Observations	361	361	361	361	345	346	347
Panel C: IV							
$\bar{X}^{post}$	0.216	4.240	0.165	9.331	3.134**	0.781**	0.331
	(0.168)	(30.173)	(0.182)	(16.198)	(1.261)	(0.385)	(0.349)
$\bar{X}^{pre}$	-0.068	6.324	-0.026	1.860	-0.662	-0.303	-0.243
	(0.108)	(17.837)	(0.116)	(10.209)	(0.771)	(0.243)	(0.232)
Observations	335	335	335	335	323	324	325
Controls	✓	✓	✓	✓	✓	✓	✓
Mean Dep. Var.	0.64	42.76	0.42	25.48	1.85	0.45	0.39
First-stage F-stat	9.95	9.95	9.95	9.95	8.45	8.48	8.47

Notes: The sample is restricted to individuals for whom the occupation used in the wage information treatment matches their actual occupation in wave 2. Regressions are weighted by the Wave 2 survey weights. The continuous outcome variables in columns 2, 4, 5, 6, and 7 are right-winsorized at the 95th percentile. Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.10.

4 Conclusion

This paper examines how first- and second-generation immigrants perceive labor market discrimination and whether these perceptions shape subsequent job search behavior. We find that immigrants perceive sizable disadvantages relative to otherwise identical native-born, non-immigrant workers. Providing occupation-specific earnings information leads respon-

dents with more pessimistic priors to revise their perceptions of discrimination, indicating that such beliefs are responsive to new objective information.

Our results further suggest that perceived discrimination is associated with greater job search effort. Rather than withdrawing from the labor market, immigrants who perceive larger disadvantages appear more likely to prepare for and pursue alternative employment opportunities. While the experimental evidence on long-run behavioral responses is imprecise, our estimates point in a similar direction.

Overall, our findings highlight the importance of beliefs in shaping labor market behavior and suggest that perceived barriers may actually induce increased search effort as workers attempt to improve their opportunities. Finally, understanding the mechanisms that shape and update perceptions of discrimination, as well as how members of disadvantaged groups formulate strategies for responding to potential discrimination, represents a promising avenue for future research.

Acknowledgments and AI Use Policy

This research was supported by the National Science Foundation (award 1832144). It was approved by the Spelman College Institutional Review Board (ID 6901D2) and pre-registered as AEARCTR-0013494. We are grateful to seminar participants at the Julian Bond Institute for comments and to Melanie De La Rosa, Hannah Hailemicael, Jadyn Jones, Sarah Lokenauth, and Gabrielle Strawn for research support. Generative AI was used to support writing and data analysis in Stata.

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Online Appendix

Figure 2: Sample Size across Study Waves

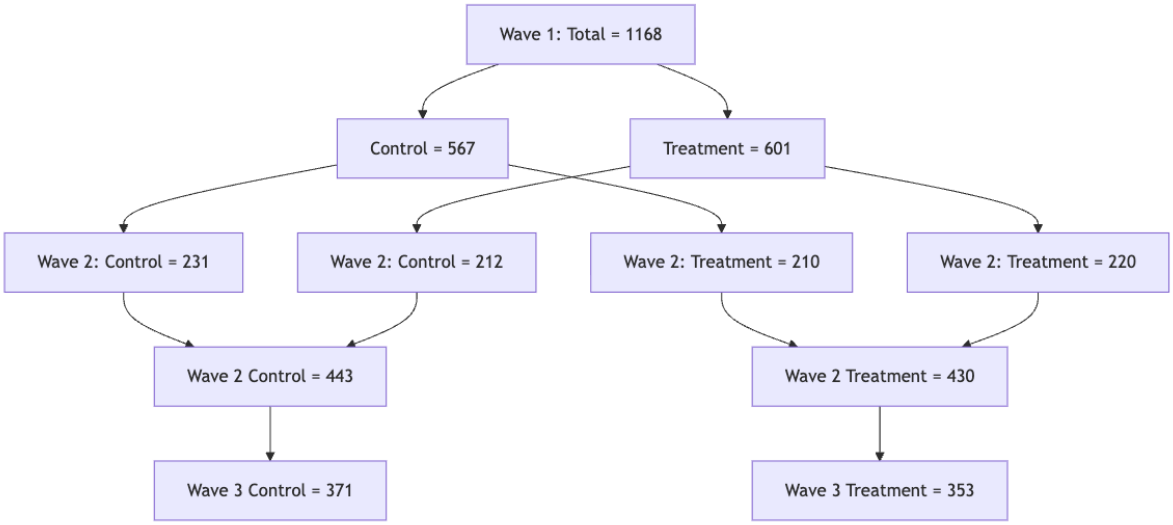


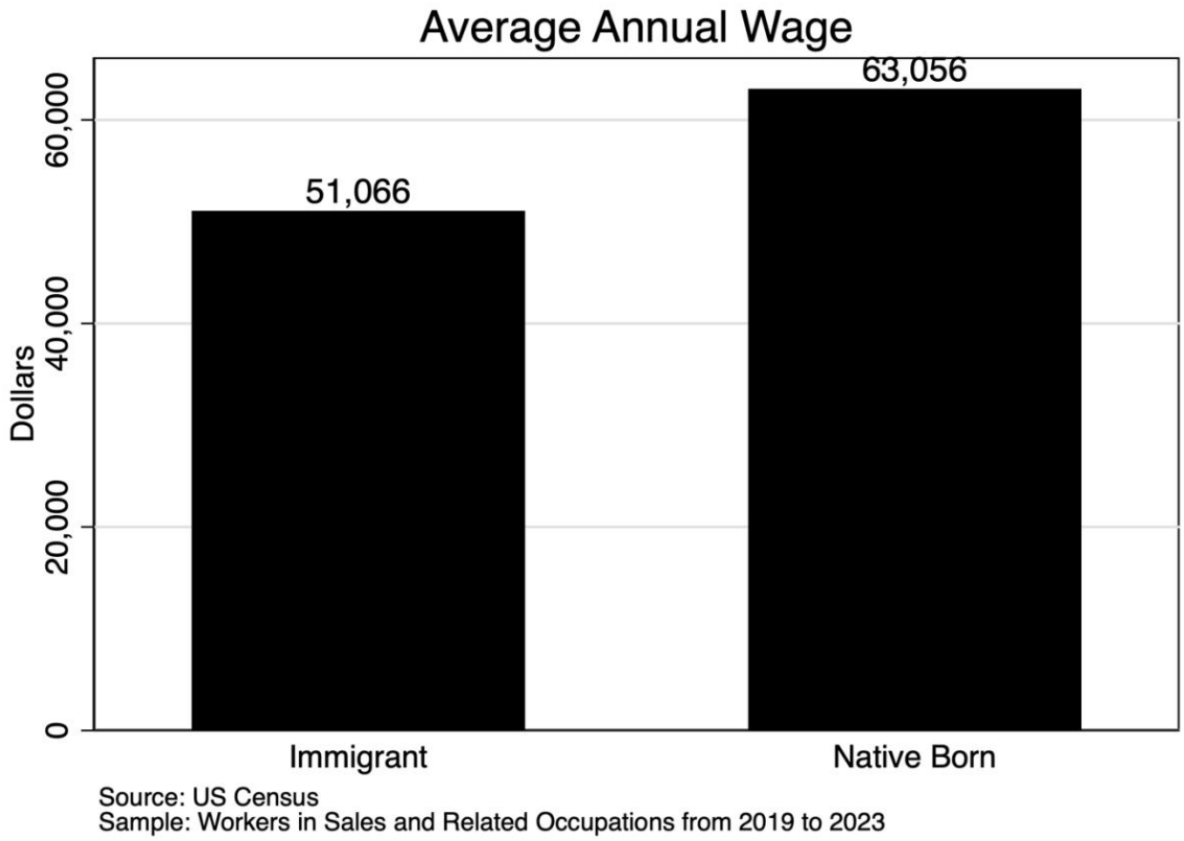
Table 5: Internal Validity – Balance of Observables across Treatment and Control

	N	All	Control	Treated	p-value
Demographics					
Age	873	43.81	44.12	43.50	0.47
Female	873	0.46	0.45	0.47	0.59
Black	873	0.07	0.06	0.07	0.43
Hispanic	873	0.40	0.40	0.39	0.74
Asian	873	0.19	0.20	0.18	0.36
Some College	873	0.28	0.27	0.30	0.34
Completed College or Above	873	0.55	0.55	0.55	0.99
Metropolitan Area	873	0.94	0.93	0.94	0.55
Northeast	873	0.14	0.14	0.14	0.99
Midwest	873	0.18	0.18	0.17	0.61
South	873	0.33	0.34	0.31	0.32
West	873	0.36	0.33	0.38	0.17
Married	873	0.56	0.57	0.55	0.55
Owns Home	873	0.63	0.65	0.61	0.33
Rents Home	873	0.35	0.34	0.36	0.45
Household Size of One	873	0.11	0.11	0.11	0.86
Household Size of Two	873	0.27	0.25	0.28	0.34
Household Size of Three or Above	873	0.62	0.64	0.61	0.45
Household Income Below 30,000	873	0.14	0.14	0.14	0.91
Household Income Below 60,000	873	0.36	0.36	0.37	0.96
Household Income Below 100,000	873	0.62	0.64	0.61	0.33
English-Surveyed	873	0.92	0.92	0.91	0.71
Part-Time Work	837	0.84	0.84	0.83	0.87
Working	869	0.96	0.96	0.96	0.78
Second-Generation Immigrant	873	0.65	0.68	0.63	0.15
Wave 2 Prior Belief Gap Among Respondents and Counterfactual Natives					
Current Wage Gap	831	0.20	0.20	0.20	0.89
Current Working Hour	854	0.64	1.01	0.25	0.14
Promotion Probability	756	4.03	6.20	1.93	0.02**
Future Wage	832	0.15	0.16	0.15	0.58
Resume Sent for Callback	838	-1.52	-1.33	-1.71	0.30
Job Search Wage	832	0.06	0.06	0.06	0.80
Bias in Population Earning Gap	804	-0.08	-0.08	-0.08	0.81
Wave 1 Belief Revisions					
Current Wage	800	0.01	0.01	0.01	0.98
Current Working Hour	836	-0.08	-0.01	-0.15	0.59
Promotion Probability	741	0.77	0.39	1.16	0.57
Future Wage	802	-0.08	-0.07	-0.09	0.32
Resume Sent for Callback	810	0.08	-0.11	0.27	0.08*
Job Search Wage	800	-0.03	-0.02	-0.03	0.78

Table 6: PCA Factor Loadings

	Current Wage	Current Hour	Promotion Prob.	Future Wage	CV Sent	Job Search Wage
Loading	0.448	0.224	0.369	0.532	-0.347	0.458

Figure 3: Example of Treatment Information for First-Generation Respondents

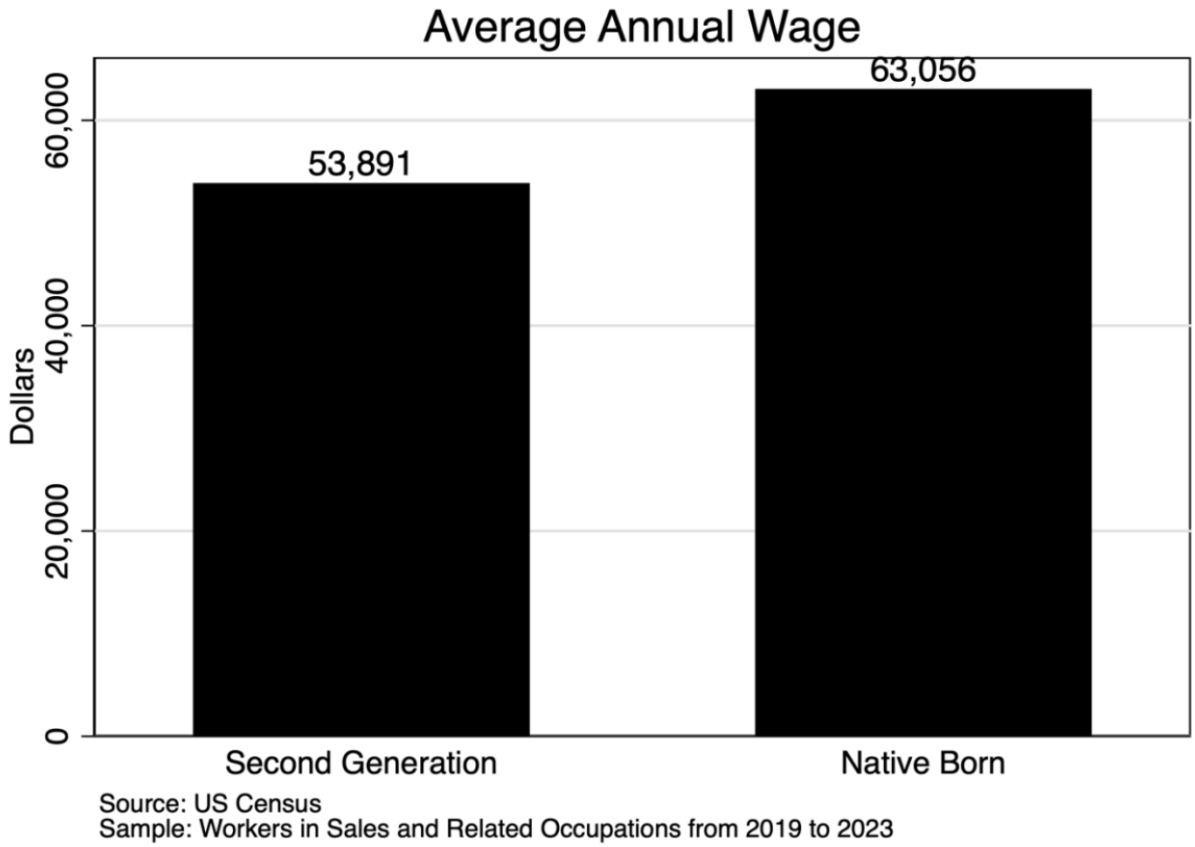


The first bar says that immigrant American workers who have the same job as you on average earned $51,066 annually.

The second bar says that native-born workers in the U.S. who have the same job as you on average earned $63,056 annually.

Therefore, immigrant Americans earned $11,990, or 19% less than native-born Americans on average in the same job as you.

Figure 4: Example of Treatment Information for Second-Generation Respondents



The first bar says that second-generation American workers who have the same job as you on average earned $53,891 annually.

The second bar says that native-born American workers who have the same job as you on average earned $63,056 annually.

Therefore, second-generation Americans earned $9,165 or 15% less than native-born Americans on average in the same job as you.

Figure 5: Perceived Discrimination by Demographics, Immigrant Generation, and Wave

