Communicating Corporate Culture in Labor Markets: Evidence from Job Postings*

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Abstract

A company's culture represents one of the most important factors that job seekers consider. In this study, we examine how firms craft their job postings to convey their culture and whether doing so helps attract employees. We utilize state-of-the art machine learning methods to develop a comprehensive dictionary of corporate values across the near-universe of job postings. Our descriptive analysis reveals that firms are more likely to advertise corporate culture in their postings when their culture is strong, as evidenced from strong external ratings and infrequent employment violations. In addition, culture information is more prevalent among job postings for positions in which the labor pool is tighter. Our main analyses demonstrate that culture information in job postings attracts job seekers, as it is associated with higher worker inflows. Culture information has a more pronounced effect on worker inflows following the Black Lives Matter movement, which increased the importance of culture to job seekers. In addition, job seekers respond more to culture information in job postings when alternative sources of information about firm culture are less readily available. Overall our findings suggest that job postings are an important mechanism for communicating cultural values to prospective employees and attracting talent.

Keywords: Corporate Culture; Labor Markets; Disclosure

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1 Introduction

Corporate culture represents a critical attribute when choosing a job. A longstanding literature in economics suggests that nonwage attributes, such as culture, can significantly influence job search.[1] In fact, some recent estimates indicate that more than 50% of job seekers believe that culture is as important as salary when evaluating job prospects (Estrada (2020)). Corporate culture has become increasingly important following recent events, including the COVID-19 pandemic, Black Lives Matter Movement, and Great Resignation, as firms with toxic cultures risk losing employees (Sull, Sull and Zweig (2022); Gibson (2021)). Despite its importance, culture is difficult to observe, and job seekers face information frictions in learning about a prospective employer's culture (Guiso, Sapienza and Zingales (2008); Guiso, Sapienza and Zingales (2015a); Grennan (2019); Graham, Harvey, Grennan and Rajgopal (2017)). It remains unclear how firms alleviate such frictions and communicate their cultures to job seekers and whether doing so improves hiring outcomes. This study aims to shed light on this issue by examining how firms craft their job postings to promote their values and how this impacts hiring.

We focus on job postings as they represent the most direct way a firm can disclose its values to prospective employees. In particular, job postings enable firms to concisely highlight the most important aspects and requirements of a job. While important, recent survey evidence indicates that many job postings are poorly written and that firms often struggle to write effective postings (Allie (2016)). This challenge is further evidenced in the rapid growth of AI-augmented job description software focused on improving job posting disclosures (Misa (2021)).[2] Our analyses build on the work of Li, Mai, Shen and Yan (2021) and utilize state-of-the art machine learning methods to develop a comprehensive dictionary of the core cultural values conveyed across 10 million postings issued by public corporations over a 11-year sample period. Our aim is to assess the extent to which culture information in job postings attracts employees.

[1] See, for example, Mas and Pallais (2017) and Maestas, Mullen, Powell, Von Wachter and Wenger (2018).

[2] For example, Textio and Talvista are two companies that develop such software. Textio notes that one of its goals is to provide "employers the words they need to attract the people they want to hire, using language that reflects the very best values and culture."

The effect of culture information on firms' recruiting efforts is unclear. On the one hand, such information may help attract top talent. This prediction assumes that employees value nonwage benefits, such as culture, and face frictions in obtaining information about culture. The notion that employees may value culture is grounded in anecdotal evidence suggesting the benefits of promoting culture in job postings, with some arguing that promoting culture is more effective than promoting specific skills (e.g., Wagner (2018); Johnson (2020b)). Recent academic studies also suggest that workers value nonwage perks, such as diversity (Choi, Pacelli, Rennekamp and Tomar (2022)) and job flexibility (He, Neumark and Weng (2021)). Job postings may help reduce information asymmetry and search costs that job seekers bear in learning about culture. For example, popular job review sites such as Glassdoor may contain biased reviews or reviews for irrelevant positions or departments. These sites also introduce costs for job seekers as they require users to submit reviews through "give-to-get" models (Dube and Zhu (2021)). In contrast, job postings provide information tailored to a specific position and can make a firm's values more accessible and salient, especially when job seekers are reviewing multiple listings at once.

On the other hand, there are valid arguments to suggest that culture information may not influence labor market outcomes. Job seekers may focus primarily on salary and consider cultural information less relevant or second-order. Indeed, recent regulatory initiatives mandating salary disclosures in job postings highlight the importance of wage information in job postings (Liu (2022)). In addition, job seekers may already be sufficiently informed about a firm's culture through other public information sources, including a firm's website, ratings on external sites, or word-of-mouth. Ultimately, the effectiveness of culture information in job postings for recruiting employees warrants an empirical investigation.

We adopt a semi-supervised machine learning approach to measure corporate culture in firms' job postings. Prior studies utilize different frameworks for defining corporate culture (e.g., Guiso et al. (2015a); Li et al. (2021)). We focus on the five most common dimensions of corporate culture that consistently emerge across the literature: *innovation*, *integrity*, *respect*, *teamwork*, and *quality*. We train a neural network model to learn meanings of all words and phrases in job postings

that relate to the above cultural contexts and then construct a dictionary containing the associated words.[3] We analyze nearly 25 million postings issued by roughly 5,000 companies over the period 2010-2020.

We begin by exploring the trends in how firms discuss culture in their job postings. Our data reveal a significant increase in culture-oriented job postings over our sample period, consistent with culture becoming more important to job seekers in recent years. In terms of specific values, firms most commonly discuss those related to quality, innovation, and respect. We also uncover meaningful industry variation, with firms in the professional services, pharmaceuticals, and information technology being the most likely to highlight corporate culture in their postings. Industries relying on manual labor, such as coal, transportation, and agriculture, on the other hand, are the least likely to emphasize culture in their postings.

Our initial analyses examine the factors that influence a firm's choice to disclose culture information in its job postings. As alluded to earlier, crafting a job posting that conveys corporate culture is not costless. Firms may be unaware of the value that job seekers place on culture or may under-invest in human resource personnel or external recruiting services that specialize in crafting job postings. Misrepresenting culture is also likely to generate costs for firms, as doing so can lead to reputation damage, poor employee matches, and costly turnover.[4]

We first assess whether good culture firms are more likely to promote culture in their job postings. These analyses require us to develop proxies for the quality of a firm's corporate culture, which is difficult to measure. To this end, we consider multiple proxies. First, we collect data from job reviews relating to employees' perception of a firm's culture. Job reviews (such as those provided on platforms such as Glassdoor and Indeed) are a natural starting point, as they represent some of the most ubiquitous measures of corporate culture (e.g., Grennan (2019)). Second, we also use an investor-oriented metric of corporate culture based on how firms disclose culture on

[3] Our results are robust to only using seed words to measure corporate culture. We report the results in Table A.8 of the online appendix.

[4] For example, hiring a worker who misunderstands a firm's culture can lead to that worker ultimately quitting. The U.S. Department of Labor estimates that "bad" hires can generate costs for a firm that are nearly 30% of the individual's annual income.

conference calls (Li et al. (2021)). Finally, we consider less subjective measures of culture based on real outcomes, including the number of employee violations (Heese and Pérez-Cavazos (2021)) and a firm's exposure to labor-related risk (Gantchev, Giannetti and Li (2019)). We examine regressions of the degree to which job postings emphasize culture on all of the above proxies. The results from these analyses suggest that firms emphasize culture more prominently in their job postings when their culture is indeed stronger based on other cultural indicators. Firms with strong corporate cultures, as measured by the strength of their Glassdoor ratings and conference call culture scores, promote culture more in their job postings. In addition, firms with more workplace violations and more ESG risk issues are less likely to emphasize culture in their postings. These results are consistent with bad culture firms facing costs that prevent them from misrepresenting their culture and suggest that job postings can credibly signal corporate culture.

We next examine the types of job postings that are most likely to contain culture information. We expect that this information should be more prevalent when firms face competitive pressure to attract top talent. Consistent with this idea, we find that firms are more likely to emphasize culture in job postings for more experienced and managerial positions. Firms also emphasize culture more when they have a history of intense recruiting needs and when their competitors are also intensely recruiting. Overall these results suggest that firms compete for talent by promoting culture in their job postings.

Our main analyses examine the real effects of emphasizing corporate culture information in job postings. For these analyses, we collect detailed quarterly establishment-level data on worker inflows from Revelio Labs. We aggregate individual job postings to a firm-MSA-quarter panel and examine the association between the level of culture information in job postings and worker inflows. Our baseline results indicate a strong positive relation between culture information and subsequent worker inflow. The results are also economically meaningful. In terms of economic magnitudes, our results suggest that a one-standard-deviation increase in culture information is associated with a 16.2% increase in employee inflow, relative to the sample median.

We next conduct two sets of cross-sectional analyses to assess the mechanisms underlying

our findings. We first expect that culture information will more strongly affect worker inflow when information asymmetries are more pronounced. Consistent with this argument, we find that our results are less pronounced among larger facilities and for firms with high-quality reviews on external job review sites. These findings help strengthen our argument that job postings alleviate information frictions about corporate culture in the labor market.

We also expect our results to be more pronounced when culture matters more to job seekers. Our second cross-sectional analysis uses the Black Lives Matter (BLM) movement as a plausibly exogenous shock that increases cultural awareness and job seekers' desire to work at firms with strong cultures. We find that job postings containing culture information relevant to the BLM movement, such as integrity and respect, have a more pronounced effect on worker inflow following the rise of BLM. In contrast, cultural dimensions less relevant to BLM (such as quality) are not associated with increased inflows following the movement. These results suggest that the effects of culture information depend heavily on the value that employees place on working at strong culture firms.

We conduct a battery of robustness tests to strengthen our claim that culture information in job postings influences worker inflow. First, we disaggregate our analysis to a finer unit of observation by examining a firm-MSA-SOC-quarter panel. This analysis allows us to more closely match the observed worker inflow to the relevant job postings. Our inferences remain unchanged with this specification. Second, we consider dynamic effects of culture language in job postings. We find no evidence of a pre-trend and find that the effects of culture language on inflows decrease predictably in quarters following a job posting. Finally, we use entropy balancing to match job postings based on firm characteristics, job characteristics, and culture. This analysis is particularly powerful, as it allows us to compare two firms that are similar across relevant observables, including culture, and more directly assess the effects of culture information. Our results continue to indicate that culture information significantly affects worker inflow.

We conclude with three exploratory analyses. We first examine the implications of culture information for worker outflows. Firms that can attract employees based on their strong cultures

should naturally experience greater worker satisfaction, thus making employees less likely to leave the company. Our results indicate that culture information in job postings is associated with lower levels of future worker outflows, suggesting that workers appear to be more satisfied in firms that promote culture. Second, we also use the outflow setting to demonstrate one potential cost to misrepresenting culture. We find that firms that misrepresent their culture in job postings experience more subsequent employee outflows. Finally, we examine how workers value culture when presented with salary information, a phenomenon that is rare in our sample.[5] We examine a subsample of firms that provide salary information and find that culture information is still predictive of future inflows after controlling for the advertised wage.

Our study contributes to the literature across several dimensions. First, we extend the academic literature on corporate culture (e.g., Graham et al. (2017); Grennan (2019); Pacelli (2019); Li et al. (2021)). Prior studies have focused almost exclusively on how corporate culture is subtly signaled through firms' public disclosures and conference calls or reflected in employee reviews. Our study is the first to examine how firms disclose culture in their job postings. This is an important extension to the literature, as recent studies indicate that job postings are informative disclosures with implications for labor markets and capital markets (Sran (2021)). Our results highlight the importance of job postings for highlighting corporate culture, attracting job seekers, and improving cultural fit in a firm.[6]

Second, we extend prior studies examining the informational role of job review sites, such as Glassdoor and Indeed (e.g., Huang, Li and Markov (2019); Hales, Moon Jr and Swenson (2018); Campbell and Shang (2021); Dube and Zhu (2021)). These studies primarily focus on the information content of employee review platforms and how they affect firm behavior. We extend this literature by examining how firms seek to alleviate potential information frictions on these platforms. Our results are consistent with firms emphasizing culture in job postings to reduce job

[5] Only 8% of job posting observations disclose salary information in our sample.

[6] A related literature in economics also examines how individuals sort into jobs based on their preferences and skills (Roy (1951)) and how intrinsic nonwage factors influence job search (Akerlof and Kranton (2005); Bénabou and Tirole (2011); Card, Mas, Moretti and Saez (2012); Hedblom, Hickman and List (2019); Ashraf, Bandiera, Davenport and Lee (2020)).

search costs for employees and reduce information asymmetry regarding firm values.

Third, our focus on culture disclosures is also relevant to the social pillar of ESG. Prior studies have examined disclosures related to other workplace issues, such as safety (Johnson (2020a)), fair payments (Rauter (2020)), and diversity and inclusion (Choi et al. (2022)). Initial evidence from the SEC's human capital disclosure mandate suggests that firms recognize the importance of corporate culture, as nearly 20% of firms discuss this issue (Batish, Gordon, Kepler, Larcker, Tayan and Yu (2021)). Our study assesses how firms disclose culture information in a large sample of job postings and how this impacts labor market outcomes.

More broadly, our results should be of interest to practitioners and managers. Advertising a firm's values is an important practice that has been advocated by many professionals. For instance, a recent Harvard Business Review article emphasizes: "It is critical that organizations ensure the roles they are hiring for are quality opportunities for meaningful work, personal growth, and impact. ... When you hire an individual whose values align with the purposes of your organization, it's a win-win. Craft the job description to invite those people to apply" (Johnson (2020c)). Similarly, practitioners increasingly recognize that "recruiters and hiring managers must place an emphasis on culture, mission and values to avoid making a bad hire" (Florentine (2018)). Our study provides some of the first large-scale empirical evidence quantifying the benefits of crafting job postings in a way that conveys a firm's culture.

2 Literature & Framework

Our aim is to provide evidence on the factors that determine how and why firms communicate culture through their job postings and the effects of this information on hiring. Broadly speaking, studies define corporate culture as an intangible asset that represents the shared assumptions, values, and beliefs that inform employee behavior (Kreps (1990); Schein (1990); Crémer (1993); O'Reilly and Chatman (1996)). Corporate culture is difficult to measure or describe, particularly for outsiders to the firm (Guiso et al. (2008)). Given these challenges, the literature has

established a variety of frameworks and methodologies for examining culture.

Several studies infer corporate culture based on the behavior of senior executives in the firm. Biggerstaff, Cicero and Puckett (2015) show that CEOs who personally benefit from options backdating are more likely to misbehave in other ways. They interpret this evidence as being consistent with the firm maintaining an unethical corporate culture. Davidson, Dey and Smith (2015) examine executives' behavior outside of the workplace as an indicator of culture. In particular, they examine whether executives own luxury goods and have had legal infractions and show that these traits are associated with higher financial reporting risk and a greater likelihood of fraud. Liu (2016) uses the backgrounds of key company insiders to construct a measure of corporate corruption culture. She finds that firms with high corruption cultures are more likely to manage earnings and commit fraud and other misdeeds.[7] Pan, Siegel and Wang (2017) examine corporate risk culture, which is defined as leaders' preferences toward risk and uncertainty and find that risk culture predicts corporate policies. Finally, Graham et al. (2017) adopt a novel approach and attempt to understand how executives view corporate culture as a driver of firm value. They conduct a novel survey of senior executives at 1,348 North American firms and find that the majority of executives believe corporate culture is a top driver of firm value and that improving culture would enhance firm value.

Beyond executives, other studies attempt to infer a firm's corporate culture based on associations or patterns that cannot otherwise be explained by common observables. For instance, early research by Cartwright and Cooper (1993) argues that mergers and acquisitions fail because of incompatible cultures. Cronqvist, Low and Nilsson (2008) document significant persistence in various investment and financing policies and attribute this to corporate culture. Fahlenbrach, Prilmeier and Stulz (2012) examine why banks are prone to perform poorly during crises. They show that the 1998 crisis predicts the global financial crisis and attribute this persistence to banks' risk cultures. Pacelli (2019) examines the association between analyst activities in one division

[7]Other studies, such as by Merkley, Michaely and Pacelli (2020), use similar methodologies to examine cultural diversity.

and security code violations in an unrelated division. He finds that violations are associated with analysts providing lower quality research to certain clients and interprets this as evidence of weak corporate culture.

The above studies adopt a rather broad definition of culture. Complementing this line of research, recent work has further examined specific dimensions of corporate culture. For example, Loughran and McDonald (2016) examine "trusting corporate cultures" by measuring the prevalence of 21 trust-related words in the Management Discussion and Analysis section of the annual report. They find that trusting cultures frequently use audit- and control-type words and exhibit increased share price volatility. Guiso, Sapienza and Zingales (2015b) study which dimensions of corporate culture relate to a firm's performance. They find that proclaimed values are not associated with performance but that actual values, as reflected in employees' assessment of managers' trustworthiness and ethics, do predict performance. More recently, Li et al. (2021) create a culture dictionary encompassing five cultural dimensions using machine learning techniques and earnings call transcripts and show that corporate culture correlates with various business outcomes, including operating efficiency and risk-taking. As discussed in more detail in Section 3, our study builds on this literature and adopts a multi-dimensional view of corporate culture.

In sum, the above discussion highlights the challenges associated with defining and measuring corporate culture. An underlying conjecture in our study is that corporate culture matters to employees when choosing a job. Thus, there may be a demand for firms to disclose this information. We focus exclusively on job postings, as they cater to job seekers.

The notion that employees care about corporate culture is well established. For example, recent work by Ghoshsamaddar, Marchetti and Sevcenko (2021) argues that a strong culture helps retain employees. The authors examine a regulatory shock that increases employee mobility in Illinois and find that firms with strong cultures post fewer jobs and offer lower salaries than those with weak ones following this event. Gadgil and Sockin (2020) use a sample of corporate scandals and show that negative reputation shocks decrease worker sentiment, largely because of

diminished perceptions of management and culture. These scandals also increase the difficulty that firms face in filling job vacancies. Similarly, Lee, Ng, Shevlin and Venkat (2020) study employee perceptions following tax avoidance news. They find that this news harms employee perceptions of managers and firms, particularly for firms in consumer-facing industries. In addition, Jeffers and Lee (2019) develop a measure of corporate culture using coworker connectivity on LinkedIn and show that firms with strong cultures depend less on explicit contracts to retain human capital. Survey evidence also indicates that more than 50% of job seekers believe that culture is as important as salary when evaluating job prospects. Overall this evidence collectively establishes that corporate culture does matter to employees.

To our knowledge, limited research has examined how firms *directly* communicate culture to job seekers. One notable exception is the work of Grennan (2020), who examines the performance implications of banks communicating their culture consistently across stakeholders. Much of the literature has examined the usefulness of alternative information providers in conveying information about culture. In particular, the focus has largely been on social media sites, such as Glassdoor and Indeed, where former and current employees can rate employers.

Studies suggest that the job review sites provide useful information. Huang et al. (2019) examine employee predictions of companies' six-month business outlook on Glassdoor and show that employee outlook predicts operating performance. Grennan (2019) uses information on Glassdoor to quantify corporate culture and examine its relation to firm value. Hales et al. (2018) examine a sample of 150,000 employee reviews and show that employee opinions predict key financial statement information, earnings surprises, and management forecasts news. Green, Huang, Wen and Zhou (2019) show that firms experiencing improvements in crowdsourced employer ratings outperform those that experience declines.[8] Firms also appear to respond to culture-related information conveyed on Glassdoor. Dube and Zhu (2021) exploit the staggered timing of first-time reviews on Glassdoor as a shock to workplace transparency. They find that

[8]Relatedly, Chemmanur, Rajaiya and Sheng (2019) examines the effects of online ratings of firms around corporate financing events and find that higher average employee ratings are associated with greater stock returns around equity issuance announcements.

firms improve their workplace practices, as reflected in corporate social responsibility scores, to remain competitive in the labor market. These results suggest that firms understand the importance of culture to employees.[9]

Importantly, there is also growing evidence to suggest that there are limitations to the information provided by social media information intermediaries. Karabarbounis and Pinto (2018) examine how well data on user-entry salaries and industry employment shares from Glassdoor compare with data from the Quarterly Census for Employment and Wages (QCEW). They show that wages appear to be highly correlated with QCEW wages but that industry employment shares differ substantially. Gadgil and Sockin (2020) find that, although job seekers find negative information about prospective employers more useful, reputation concerns can reduce the quality and value of information on Glassdoor. Recent work by Marinescu, Klein, Chamberlain and Smart (2018) also suggests issues related to selection bias on Glassdoor. They find that voluntary reviews exhibit different distributional properties than do incentivized ones.

Overall, the preceding discussion generates several relevant insights for our study. First, corporate culture is difficult to define and communicate, especially to outsiders. Second, employees demand information related to culture. This may be in part because they value being part of a firm with strong values. At the same time, there are limitations to the information available from outside sources, such as Glassdoor and Indeed. Information provided directly by firms may thus be deemed more relevant to prospective employees. It may also be more easily accessible, reducing job search and processing costs. Our analyses will examine the factors associated with a firm's decision to shape its job postings in a way that makes corporate culture salient. In addition, we will examine the effect of highlighting culture in job postings on firms' hiring outcomes. Any effects of such disclosures on employee inflow thus depend jointly on both the extent to which the disclosures inform job seekers and whether employees value culture.

[9] A related stream of research examines the informativeness of Glassdoor information for other stakeholders. Campbell and Shang (2021) also show that information from Glassdoor predicts corporate misconduct risk. Fan, Ji, Thomas and Wang (2019) show that employee disclosures are associated with loan spreads in private lending agreements, which they interpret as evidence that this information matters to lenders.

3 Data and Empirical Framework

3.1 Measuring Corporate Culture in Job Postings

We follow Li et al. (2021) and Guiso et al. (2015b) to measure five dimensions of corporate culture in job postings: innovation, integrity, quality, respect, and teamwork. We obtain job postings from Burning Glass Technologies (BGT hereafter) for the period January 1, 2010, to Dec 31, 2020. BGT provides the employer name which helps us match the company to the Compustat database. We retain job postings that contain more than 100 words. Following Li et al. (2021), we use the Stanford CoreNLP package (Manning, Surdeanu, Bauer, Finkel, Bethard and McClosky (2014)) to parse the text.

We follow Li et al. (2021) and use a word embedding model, which is a novel machine learning approach (Mikolov, Sutskever, Chen, Corrado and Dean (2013)). The goal of word embedding is to convert each word into a vector. The vectors allow us to calculate cosine similarities to determine the relationship between any two words. As discussed by Li et al. (2021), a word embedding model is more practical than simply counting words from self-developed dictionaries because corporate culture is often discussed in subtle ways, with words and phrases evolving with the business world. For example, when we identify the culture dictionary related to teamwork using this method, we identify not just words associated with teamwork but also euphemistic phrases, such as "shoulder to shoulder" (Li et al. (2021)).

We implement word2vec to train a neural network model to create low-dimensional vectors to represent the meaning of all words. We then use the set of seed words for each cultural value as proposed by Li et al. (2021). We further extend this list by adding "diversity" and "inclusion" to the seed words listed under respect, as they are likely relevant to how culture is discussed in job postings. To represent each cultural value, we then compute the average of the vectors representing the seed words obtained from the word2vec model. Appendix B lists the seed words we use.

Next, we generate a culture dictionary based on a trained model. To increase the efficiency of the training, we use a proportional stratified random sample of one million job postings every year.

In other words, the number of postings of a company in the random sample is in proportion to its total number of job postings during the year. To generate the culture dictionary, we compute the cosine similarity between each word in the trained sample and the vector representing each cultural value, for which we then select the 500 words with the closet cosine similarity.

Finally, we manually check the dictionary. We exclude words that do not fit. For example, common words such as "every" and "many" under respect are excluded from our list.

To measure the prevalence of each cultural value present in a job posting, we divide the number of words related to the value from the dictionary by the total number of words in the job posting and multiply this value by a weight to account for the importance of a word both within the posting and the corpus. This weight is the term frequency-inverse document frequency, or "tf-idf". The terms tf and idf represent the word frequency in the posting and the inverse frequency in the corpus, respectively. We apply the weight to adjust for cases that certain words appear more frequently in general, as this weight increases with the number of times a word appears in a document and decreases with the number of documents in the corpus that contain the word.

Our primary sample contains approximately 25 million job postings, which are issued by 4,911 firms. We describe the aggregation of this data in more detail below.

3.2 Other Corporate Culture Data

We incorporate several additional datasets on corporate culture into our analyses, which we use to assess the credibility of culture information in job postings. First, we collect data from Glassdoor relating to employees' perception of the firm's culture. Second, we incorporate an investor-oriented metric of corporate culture based on how firms discuss their culture on conference calls (Li et al. (2021)). Finally, we collect data on employee violations from Good Jobs First Violation Tracker (Heese, Pérez-Cavazos and Peter (2021)) and labor-related risk issues from RepRisk AG, a data provider on ESG issues (Gantchev et al. (2019)). The latter measures have the advantage of being less subjective and reflecting real adverse outcomes in the workplace.

3.3 Employee Inflow Data

Our primary outcome variable captures employee inflow using data from Revelio Labs. The firm sources employee flow data from a variety of sources, including employee online professional profiles, company job postings, and government data (Fadhel, Panella, Rouen and Serafeim (2022)). These data are provided at the monthly level for firms and locations. Our main analyses aggregate the inflow data to a firm-MSA-quarter panel to approximate inflow in an establishment of a firm. The variable *Inflow* is defined as the average number of employees joining the firm in a given quarter scaled by the total number of employees in the facility at the beginning of the quarter.[10]

3.4 Variables of Interest

Our machine learning methodology yields five cultural variables. These variables include *Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*. Higher levels of each of these variables indicate a higher intensity or presence of that cultural attribute in the job posting texts. We aggregate these measures to create a composite culture score. We construct the variable, *JobCulture*, to be equal to the average of the five cultural dimensions. To ease interpretation, we standardize the five culture variables and the composite culture score to have a mean of zero and a standard deviation of one.

3.5 Controls

Our analyses include a wide set of controls to account for firm-level and geographical factors that may relate to the way culture is conveyed in job postings. In addition, our analyses also control for other relevant job posting attributes. Our firm-level controls include firm size, leverage, market-to-book ratio, return-on-assets (ROA), and intangible assets scaled by total assets. From the job

[10] In Section 5.4, we also consider a robustness test where we aggregate the data to the firm-MSA-SOC-quarter level. Our primary analyses rely on the firm-MSA-quarter level aggregation since most firm-MSA-quarter pairs in our sample only have one or two SOC categories.

postings data, we also control for the length of job postings, the level of education, experience and skill requirements, the number of job postings released in the current quarter, and the percentage of job postings with nonmissing salary information. Detailed variable definitions can be found in Appendix A.

3.6 Univariate Analysis

We begin our analyses by describing the job posting culture data in more detail. Figure 1, Panel A, presents the time-series plot of culture information in job postings over our sample period. The figure indicates a steady increase in the intensity in which firms discuss corporate culture in their job postings. This likely reflects increased attention to and interest in culture from job seekers in recent years. In Panel B, we present the time series trend after disaggregating the culture measure into its five sub-components. The figure indicates modest increases in all five components. In addition, *Quality*, *Innovation*, and *Respect* tend to be the most frequently occurring cultural values advertised in job postings.

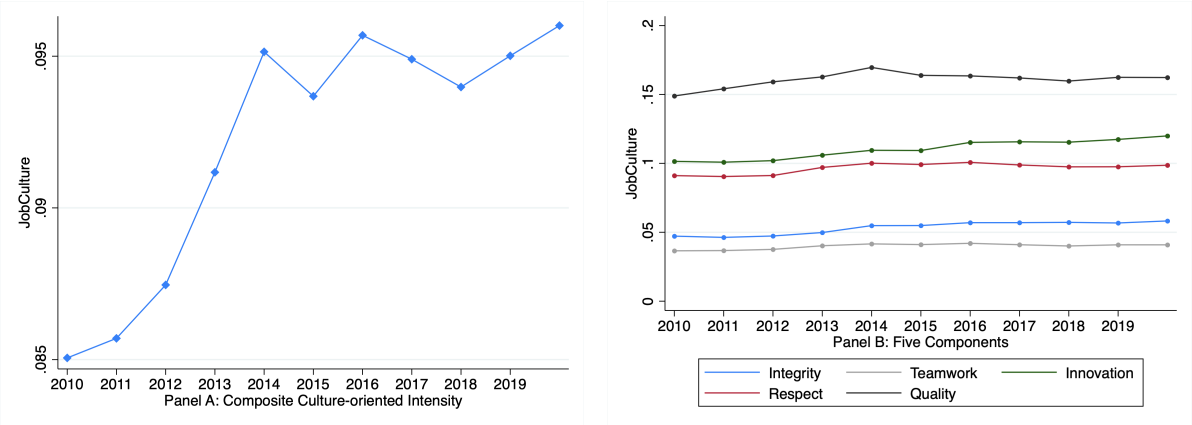

Figure 1. Descriptive Analysis:
This figure plots the time-series trend of culture scores over the sample period. On the left, we focus on the composite culture score. On the right, we focus on the five dimensions of corporate culture separately.

Given that our data is organized by location, we also explore geographical heterogeneity in our measure. Figure 2 presents the average composite culture score at the state-level across our sample period. Warmer (cooler) colors indicate areas in which job postings focus more (less) on

culture. The figure suggests that jobs located in coastal states with major metropolitan ares, such as California and New York, contain job postings with the most intense cultural focus. In contrast, job postings for firms located in the Midwest and Northwest (excluding Washington and Oregon) emphasize culture far less.

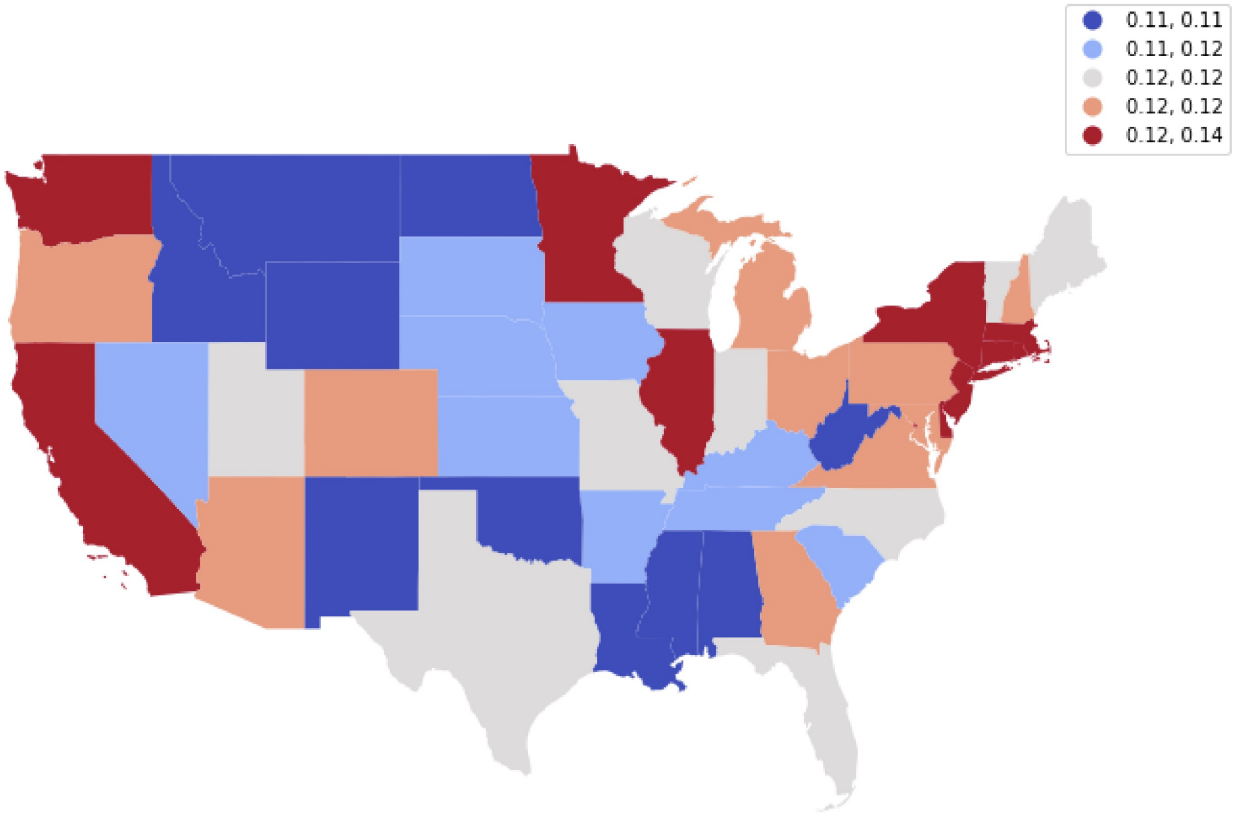

Figure 2. Geographical Heterogeneity of Average Cultural Scores:
This figure reports the geographical distributions of the five-dimension composite culture score. Warmer (cooler) colors indicate areas in which job postings focus more (less) on culture.

We also explore industry heterogeneity. In Figure 3, we sort industries based on the prevalence of culture discussions in their job postings. The figure suggests that firms in the pharmaceutical products, business supplies, computer, and business services industries discuss culture the most. In contrast, coal, transportation, and beer & liquor provide job postings with the most limited discussion of corporate culture.

Overall the univariate analyses indicate strong trends across time, location, and industry. While culture information in job postings is generally increasing over time, the information is not uniform

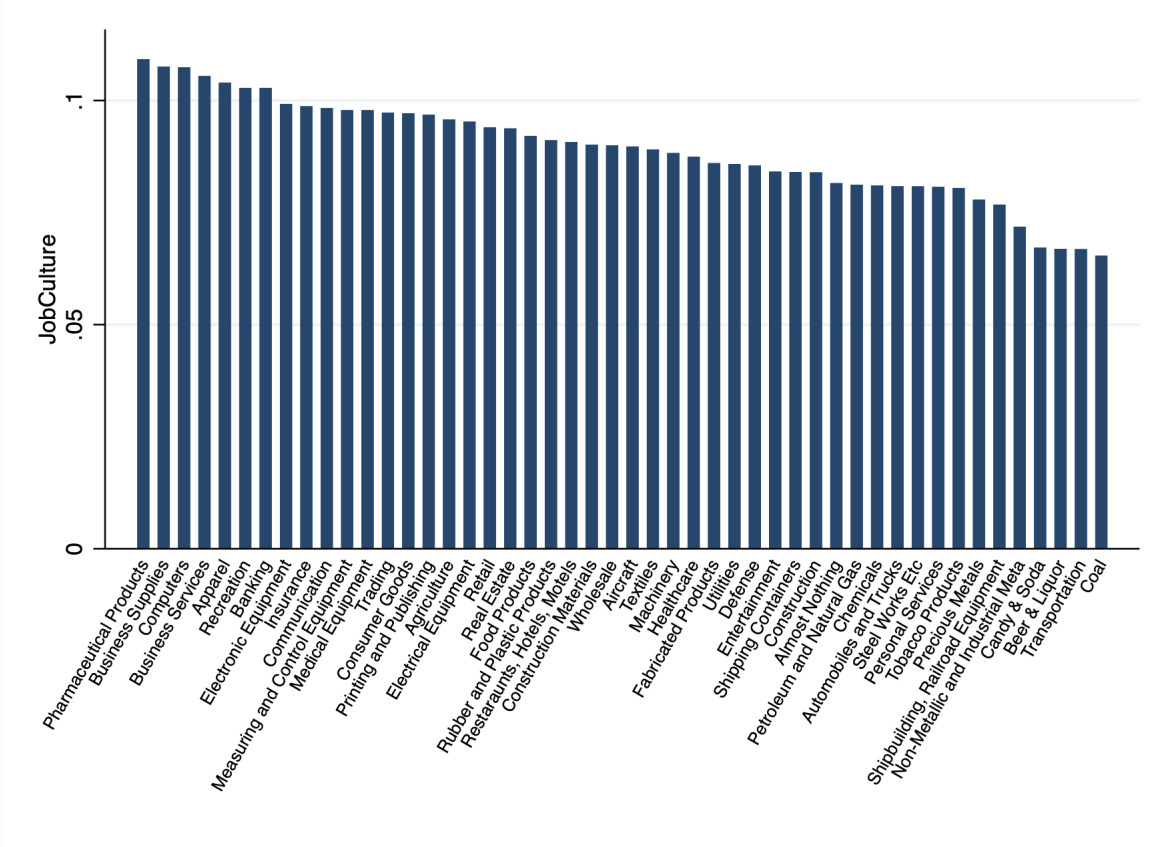

Figure 3. Industry Distribution of Average Culture Scores:
This figure reports the industry distributions of the five-dimension composite culture score. Industry membership is categorized using Fama-French 48 groups.

across industries and states. Our subsequent analyses will account for this heterogeneity through the inclusion of an expansive set of fixed effects.

4 Factors Associated with Culture-Focused Job Postings

4.1 Empirical Framework

Our determinants analyses employ several empirical models for assessing the factors associated with culture information in job postings. The first model is at the job-posting level (i.e., the unit-of-observation is a single job posting). For this initial test, we consider a variance decomposition framework to assess what factors explain variation in job postings. Formally:

$$JobCulture_{f,t,i,s,c} = \gamma_f + \delta_m + \xi_i + \eta_s + \theta_c + \varepsilon_{f,t,i,s,c}, \quad (1)$$

where f indexes firm, t indexes date, i indexes industry, s indexes occupation, and c indicates county. To classify occupations, we use the 2018 Standard Occupational Classification system (SOC), a federal statistical standard used by federal agencies to classify workers into occupational categories. The subscript m represents the calendar month for which the job posting is issued. The dependent variable *JobCulture* is the composite culture score discussed above. We also consider alternative decompositions similar to this model that include interactive fixed effects.

Our second empirical model examines the credibility of job postings discussing corporate culture. For these tests, we aggregate the data to the firm-quarter or firm-year level, as other culture measures are not available at the job posting level. We estimate the following model:

$$JobCulture_{f,t} = \beta_1 Culture\ Proxy_{f,t} + \textbf{Controls} + \delta_t + \xi_i + \varepsilon_{f,t}, \quad (2)$$

where f indexes firm, t indexes calendar quarter or year, and i indexes industry group. *JobCulture* is the composite culture score. *CultureProxy* is one of five alternative measures of corporate culture. The first and second are the average employee overall and culture-related ratings on Glassdoor ($Rating : Overall$ and $Rating : Culture$), respectively, measured at the calendar-quarter level. The second is the overall earnings conference call culture measure, as estimated by Li et al. (2021) (*ECallCulture*), and measured at the yearly level. The fourth is a measure of employee violations, where higher values indicate worse culture (*Violations*). The fifth is a measure of labor-related risk issues (*LaborRisk*). **Controls** is a vector of control variables that includes the length of job postings, the percentage of job postings with nonmissing salary information, firm size, leverage, market-to-book ratio, ROA, and intangible intensity. We also include industry and quarter fixed effects. Standard errors are two-way clustered at the firm and quarter levels. If job postings credibly signal a firm's culture, we expect the job review and conference call-based measures to be positively associated with our culture measure. Similarly, we expect labor-related

violations and risk issues to exhibit a negative association with culture-related discussions in job postings.

Our third empirical model examines how labor market competition can influence the provision of culture information in job postings. These tests adopt a framework similar to that in equation 1 above. For these tests, we estimate the following model:

$$JobCulture_j = \beta_1 Factors_j + \textbf{Controls} + \phi_{f\times s} + \psi_{c\times t} + \varepsilon_j, \tag{3}$$

where j is a job posting issued by firm f on date t in industry i and SOC job type s and county c. *JobCulture* is the composite culture score. *Factors* is one of several factors reflecting a firm's need to compete for talent on the basis of culture. The first captures experience requirements in the job posting, including the education requirement (*Education*), the experience requirement (*Experience*), and an indicator for whether the job requires managerial skill (*Managerial*). Firms may compete more to attract employees with more experiences, and these employees may care more about culture. The second captures the tightness of the labor market, as proxied by the number of job postings issued by the firm of interest (*HireIntensity*) and the number of job postings from industry peers in the previous quarter (*CompetitivePressure*). The rationale here is that jobs which many industry peers are trying to hire for likely represent jobs in tighter labor markets. We also use *PeerCulture*, the average culture scores of job postings by industry peers in the same MSA for the same occupation (SOC), as a proxy for the tightness of the labor market. **Controls** is a vector of control variables that includes the length of job postings, the number of skills required by employers, firm size, leverage, market-to-book-ratio, ROA, and intangible intensity. While we vary the fixed effects across models, our most stringent specification controls for variation within a job through the inclusion of firm×SOC fixed effects ($\phi_{f\times s}$). In addition, we control for time-varying local characteristics through the inclusion of county×time fixed effects ($\psi_{c\times t}$). Standard errors are two-way clustered at the firm and month levels.

Table 1 describes our sample in more detail. We first report the summary statistics for the

sample on the job posting level in Panel A. The average job posting in our sample has a mean (median) culture score of 0.094 (0.069). *Quality* and *Innovation* are the most frequently discussed values in job postings. *Teamwork* is the least frequently discussed. On average, job postings require workers with roughly at least a middle-school education (eight years) and experience of two years in the workforce. In addition, 20% of job postings relate to jobs that require managerial skills.

In Panel B, we explore the primary sources of variation in culture information (i.e., estimates of equation 1). Each row presents the adjusted R^2 from a regression of *JobCulture* on the corresponding fixed effects. The table indicates several interesting trends. First, with respect to independent fixed effects, firm fixed effects explain most of the variation in our culture measure, accounting for 28.8% of the variation. Job type also matters, as SOC codes explain 24% of the variation in *JobCulture*. In contrast, location and time appear less meaningful. As we examine interactive fixed effects, we find that most of the variation in *JobCulture* is explained by employer-SOC interactive fixed effects. These fixed effects, which essentially capture a job within a firm, account for 51.8% of the variation in the dependent variable. One interesting takeaway from this analysis is that the use of culture language in job postings appears to vary within firm (as the firm×time fixed effects only explain 38.6% of the variation in *JobCulture*). This suggests the job posting language is far from boilerplate and more specific than culture measures offered through traditional external sources. Firms appear to craft job postings uniquely for certain positions or job types.

Finally, Panel C reports the summary statistics for the sample at the facility-quarter (i.e., firm-MSA-quarter) level, which we use for our main analyses examining the consequences of culture disclosures. Inflow is economically small in our sample, with mean (median) levels of 3.218% (1.213%).

4.2 Tests of Disclosure Credibility

Our first primary analyses assess the credibility of culture language in job postings by estimating equation 2. We provide these results in Table 2. In columns (1) and (2), the coefficients

on *Rating: Overall* and *Rating: Culture* are positive and significant at the 1% level, indicating that culture information in job postings is positively associated with overall employee ratings and corporate culture-related ratings from Glassdoor. In column (3), the coefficient on *ECall Culture* is positive and significant at the 1% level, suggesting that culture information in job postings is positively associated with the culture measure based on conference calls. In columns (4) and (5), the coefficients on *Violations* and *Labor Risk* are negative and significant at the 1% level, suggesting that the culture information in job postings is negatively associated with labor-related violations and ESG risk issues. Overall, the results from Table 2 suggest that firms emphasize cultural values more prominently in job postings when their culture is stronger based on other cultural indicators. These results are consistent with bad culture firms bearing costs that deter them from misrepresenting culture.[11] The evidence suggests that job postings credibly signal corporate culture to job seekers.

4.3 Tests of Other Determinants

Our next determinants analysis examines other factors that may explain variation in culture information in job postings. In Table 3, we provide the results from estimates of equation 3. Panels A and B report the results based on experience-based attributes and labor market tightness, respectively. We report the results based on two sets of fixed effect structures. The first one is based on SOC, county, and firm×quarter fixed effects. The second one is based on firm×SOC as well as county×quarter fixed effects.

In Panel A, the coefficients on *Education*, *Experience*, and *Managerial* are positive and significant at the 1% or 5% levels, suggesting that firms tend to emphasize culture more in job positions that require higher education, experience, and managerial skills, positions that firms likely face more competition when filling.[12] In Panel B, the coefficients on *HireIntensity*,

[11] In section 6.1, we find that firms that misrepresent their culture in job postings experience more subsequent employee outflows.

[12] We also report the results based on detailed levels of education and experience requirements in Table A.1 of the online appendix.

CompetitivePressure, and *PeerCulture* are positive and significant at the 1% or 5% levels, suggesting that firms tend to emphasize culture more when hiring aggressively or when peer firms are also trying to compete by promoting culture.[13]

Overall Table 3 yields several interesting trends. Firms appear to focus culture discussions on job postings for more experienced roles. In addition, these discussions appear to be used most when labor markets are tight. Collectively, the results suggest that job postings are more likely to contain cultural information when firms face competition in attracting top talent. Our analyses thus far paint a comprehensive picture of the attributes associated with culture disclosures in job postings. Our subsequent analyses will examine the implications of these disclosures.

5 Consequences of Culture-Focused Job Postings

5.1 Empirical Framework

Our consequences analyses assess whether culture information in job postings is associated with increased employee inflow at the facility (i.e., firm-MSA) level. To do so, we aggregate the employee inflow data to a facility-quarter level to approximate inflow in an establishment of a firm. We also take the average of culture scores of job postings for the facility during a quarter. We estimate the following regression:

$$Inflow_{f,c,t} = \beta_1 JobCulture_{f,c,t-1} + \textbf{Controls} + \chi_{f\times c} + \psi_{c\times t} + \varepsilon_j, \tag{4}$$

where f indexes firm, c indexes MSA, and t indexes quarter.[14] *Inflow* is the number of new employees at an establishment scaled by the total employees at the establishment. *JobCulture* is

[13] We also conduct this test for each of the cultural values. The results are reported in Table A.2 of the online appendix. Across the five values, we find consistent results suggesting that firms tend to provide more information about culture for job positions that require more experience and managerial skills. We also find that firms tend to provide more culture information when peer firms provide more information about culture.

[14] Since county-level employee inflows are not available on Revelio, we aggregate the data to the MSA level in these tests.

the composite culture score aggregated at the facility-quarter level (*JobCulture*). *Controls* is a vector of control variables that includes employers' requirements on education and work experience, the length of the job posting, the number of job postings in the current quarter, the number of skill requirements, and the percentage of job postings with available salary information. The model also includes firm-level control variables, including firm size, leverage, market-to-book ratio, ROA, and intangible intensity. While we vary the fixed effects across models, our most stringent specification controls for time-invariant facility heterogeneity through the inclusion of facility fixed effects ($\chi_{f\times t}$) and time-varying local characteristics through the inclusion of MSA×time fixed effects ($\psi_{c\times t}$). We also consider a host of alternative fixed effects structures including accounting for time-varying firm heterogeneity through including firm×quarter fixed effects. Standard errors are two-way clustered at the firm and MSA levels. If culture information helps attract workers, we expect β_1 to be positive.

5.2 Main Results

Table 4 provides the results from regressions of inflow on culture information (equation 4). To ease the interpretation of the coefficients, we standardize *JobCulture* to have a mean of zero and a standard deviation of one. We consider several different empirical models. In column (1), we include firm-level control variables with no fixed effects. The coefficient on *JobCulture* is positive and significant at the 1% level, suggesting that culture information in job postings is positively associated with subsequent employee inflow. In terms of the economic magnitude, a one-standard-deviation increase in *JobCulture* is associated with 0.455% increase in inflow, representing a 37.5% increase, relative to the unconditional sample median. In column (2), we include control variables related to job postings and MSA×quarter fixed effects and firm×quarter fixed effects, which subsume firm-level control variables. In other words, we account for job posting characteristics and time-varying firm heterogeneity. The coefficient on *JobCulture* is positive and significant at the 1% level, and the economic magnitude is about half of that in column (1). This is not surprising, as other job posting-related variables are also associated with

inflow. For example, hiring intensity is positively associated with future inflow. In column (3), we include firm controls and replace MSA×quarter and firm×quarter fixed effects with facility and quarter fixed effects to account for the time trend and time-invariant facility heterogeneity. The coefficient on *JobCulture* remains positive and significant at the 1% level, and the economic magnitude resembles that in column (2). Finally, column (4), our most stringent specification, includes facility and MSA×quarter fixed effects, to account for time-invariant facility and local heterogeneity. The coefficient on *JobCulture* is positive and significant at the 1% level. The magnitude also resembles that presented in columns (2) and (3). Specifically, a one-standard-deviation increase in culture disclosure in job postings is associated with an approximately 0.196% higher level of inflow, which represents a 16.2% increase, relative to the unconditional sample median. Overall, the evidence thus far suggests that job postings that highlight corporate culture are associated with significantly higher levels of inflow subsequently, suggesting that these disclosures are informative and valuable to job seekers.[15]

5.3 Cross-Sectional Analyses

Having established a robust relation between culture information in job postings and employee inflow, we next consider two cross-sectional tests that assess the mechanisms for our findings. These tests allow us to assess how informational frictions and the importance of culture to job seekers moderate our findings.

5.3.1 The Role of Information Asymmetry

First, we consider the the level of information asymmetry a job seeker faces with respect to learning about a firm's corporate culture. As discussed in Section 2, there are various alternative sources of information that a job seeker can consider when learning about corporate culture. We

[15] In Table A.3 of the online appendix, we also re-examine this analysis with an indicator variable for job postings with high levels of culture information. Our inferences remain unchanged. In addition, we consider the various sub-components of our composite culture measure (Table A.4 of the online appendix). The results indicate that all of the five sub-components are positively and significantly associated with employee inflow.

expect job postings to have a weaker effect on attracting employees when these alternative sources of information are more prevalent and useful, as this would reduce the information asymmetry a job seeker faces in learning about corporate culture.

To test this conjecture, we re-estimate equation 4 but interact *JobCulture* with proxies for information asymmetry. We consider three proxies for information asymmetry. First, we consider facility size, under the assumption that larger facilities are generally more visible, thus reducing information asymmetry. The next two proxies are based on employee reviews on Glassdoor. We expect that job seekers face lower information asymmetry when a firm has available reviews on Glassdoor or reviews that are generally considered helpful by Glassdoor users.

Table 5 presents the results for our information asymmetry tests. For each information asymmetry proxy, we report the results based on two sets of fixed effects structures. The first is based on facility and quarter fixed effects, and the second one is based on the facility and MSA$\times$quarter fixed effects. Columns (1) and (2) report the results based on facility size. We define *LargeFacility* as an indicator variable that equals one if the total number of employees of a facility is in the top 30% of the sample distribution in the quarter and zero otherwise. We find the coefficients on *LargeFacility*$\times$*JobCulture* to be negative and significant at the 1% level. The results suggest that culture information on job postings has a weaker effect on attracting employees when the facility is large and culture information about the firm is presumably more available. Columns (3) and (4) report the results based on the availability of employee reviews on Glassdoor. We define *Review Available* to take the value of one if there are available reviews for the facility on Glassdoor in the past year and zero otherwise. We find the coefficients on *Review Available* $\times$ *JobCulture* to be negative and significant at the 1% level, suggesting that culture information in job postings has a weaker effect on attracting employees when there are available reviews on Glassdoor. Columns (5) and (6) report the results based on the helpfulness of reviews on Glassdoor. We define *High Helpfulness* to take the value of one if the average helpfulness of reviews is in the top 30% on Glassdoor and zero otherwise. We find the coefficients on *High Helpfulness* $\times$ *JobCulture* to be negative and significant at the 1% level, suggesting that culture

information on job postings has a weaker effect on attracting employees when the reviews on Glassdoor are more helpful. Overall the results suggest that culture information in job postings has a weaker effect on attracting employees when job seekers have access to alternative information about a firm's corporate culture.

5.3.2 The Role of Information Materiality

In our second cross-sectional analysis, we consider the importance or materiality of culture to job seekers. We expect the effect of culture information on job postings to be stronger when employees begin to value culture more. To test this conjecture, we use the BLM movement as a plausibly exogenous shock to job seekers' demand for cultural values related to integrity and respect. The recent BLM protests, which started at the end of May 2020, represent the largest social movement in the U.S. history.[16] This movement has also increased the awareness of integrity- and respect-related cultural values, such as fairness, diversity, and inclusion. We thus expect culture information related to integrity and respect to more strongly attract employees following BLM. In contrast, less relevant dimensions of culture (such as quality) should not be associated with meaningful increases in inflows following BLM.

To test this conjecture, we define *BLM* as an indicator equal to one for the months between June 2020 and December 2020 and zero for the months between November 2019 and May 2020. We regress *Inflow* on the cultural score on each dimension and its interaction with *BLM*. Specifically, we estimate the following regression:

$$\begin{aligned} Inflow_{f,c,t} = \beta_1 BLM \times JobCulture_{f,c,t-1} + \beta_2 JobCulture_{f,c,t-1} + \\ \textbf{Controls} + \chi_{f\times c} + \psi_{c\times t} + \varepsilon_j, \end{aligned} \tag{5}$$

where f indexes firm, t indexes date, and c indexes MSA. The independent variable *JobCulture* is the culture score of each of the cultural values. If job postings with more information related to integrity and respect attract more employees after the BLM movement, we expect β_1 to be positive

[16] See https://www.nytimes.com/interactive/2020/07/03/us/george-floyd-protests-crowd-size.html

and significant when we use culture scores on integrity and respect as the dependent variable, respectively.

We present the results for this test in Table 6. We find the coefficients on *BLM* $\times$ *Integrity* and *BLM* $\times$ *Respect* are positive and significant at the 1% level, suggesting that information about Integrity and Respect in job postings has a more pronounced effect on attracting employees following BLM. In terms of the economic magnitudes, a one-standard deviation increase in Integrity and Respect is associated with 0.035% and 0.049% greater increase in inflow after the BLM movement. On the contrary, we do not find a similar effect for information on other cultural dimensions. The results indicate that the effects of culture information on employee inflow are stronger when culture is more important and material to job seekers.

5.4 Robustness Analyses

Our results thus far indicate a strong association between culture discussions in job postings and employee inflows. In our next set of analyses, we assess the robustness of our findings across several dimensions.

5.4.1 Job-level Analyses

We first test the robustness of our main analyses to an alternative research design. Ideally, we would measure the effect of a job posting on the firm's ability to fill the corresponding job. However, since such information is unavailable, we rely on facility-level analyses for our main tests. To alleviate concerns that this data structure generates measurement error, we conduct an alternative analysis that provides a tighter link between job postings and job inflows.

Specifically, we re-estimate our main analysis (which is at the facility level) at the job level. To do so, we aggregate the employee inflow data to a facility-SOC-quarter level to approximate inflow for a specific type of job in an establishment of a firm. We also take the average of culture scores of job postings for this type of job at the facility during a quarter. We then re-estimate equation 4

using this finer sample.

The results are reported in Table 7. Our inferences are unchanged, as the coefficients on *JobCulture* are positive and significant at the 1% level. In terms of the economic magnitude, in column (4), a one-standard-deviation increase in *JobCulture* is associated with 61.7% increase in inflows, relative to the sample median.[17] This analysis thus helps generate a stronger linkage between culture information in job postings and a firm's ability to fill a specific vacancy.

5.4.2 Timing of the Main Effects

We next examine the timing of our effects. One possible concern is that firms might have already experienced increased inflow prior to information being disclosed in job postings, thus suggesting that the effects we document are unrelated to the disclosure per se. To help address this concern, we examine various lags and leads of our inflow measures to provide more direct evidence on how they relate to culture information in job postings.

Table 8 provides the results of the dynamic timing analysis. In column (1), we use employee inflow in the previous quarter as the dependent variable. We find that the coefficient on *JobCulture* is insignificant, indicating that culture discussions in job postings are not associated with prior period employee inflow. This suggests that increases in inflow are not driven by information arriving before the job posting. In column (2), we use employee inflow in the current quarter as the dependent variable. We find that the coefficient on *JobCulture* is positive and significant at the 5% level, indicating that culture discussions in job postings are associated with current employee inflow. Columns (3)-(6) report the results when we use employee inflow in the following four quarters as the dependent variable, respectively. We find that the coefficient on *JobCulture* is positive and significant when we examine inflow during the following two quarters, and the magnitude is decreasing over time. Overall the results suggest that culture discussions in job postings are not associated with inflow during the previous quarter, suggesting no evidence of a pre-trend. The effects also diminish reasonably over time.

[17] The median of *Inflow* is 0.149 for the facility-SOC-quarter panel.

5.4.3 Entropy-balanced Matching Analysis

A central conjecture in our study is that job postings contain incremental information about a firm's culture. Job seekers may be sufficiently informed about the firm's culture through other public information sources, such as culture ratings from job review websites. However, as we argue above, collecting information from these websites may be costly, and the information may be of lower quality. In contrast, job postings can provide information that is more accessible and salient. Nevertheless, a potential concern for our study is that the effects we document are driven by corporate culture, instead of the culture information present on job postings. Our analyses address this issue in several ways. For instance, our results are robust to controlling for existing culture proxies, suggesting that culture information matters. The results are reported in Table A.5. In addition, our cross sectional analyses on information asymmetries also help alleviate this concern, as we find stronger effects when job seekers face higher information asymmetries in learning about culture, thus highlighting the role of culture information.

To further mitigate the concern, we employ an entropy-balanced matching procedure to control for differences (such as culture ratings by employees) between firms that more prominently provide culture information in their job postings and those that do not provide such information.[18] Specifically, we match observations with *JobCulture* values in the top 30% of the sample distribution (Treated Sample) to the rest of the sample (Control Sample) by assigning weights to each control observation and matching treated observations to control observations on the first and second moments of employee culture ratings, education, experience, and skill requirements, the overall length and number of job postings, salary disclosures, firm-level controls, and quarter and MSA dummies. The weights are then used in the regression analysis.

Table 9 reports the results of our main analysis using entropy balancing. Panel A shows the

[18] In general, entropy balancing is superior to other forms of matching, as it re-weights observations in the control sample to ensure the moments of the distributions of the matching variables are the same between the treated sample and the re-weighted control sample. Prior studies indicate that entropy balancing is generally more effective than simple matching or propensity-score matching, since it relies on less restrictive assumptions and retains more information by allowing weights to vary smoothly across observations in a more flexible manner (e.g., Hainmueller (2012)).

distributional properties of observations with *JobCulture* in the top 30% of the sample distribution (*TopCulture*) and the control sample after entropy balancing. This table shows that this process results in no significant differences in any of the matching variables between the treated and control samples. Panel B presents the regression results with the weights we obtain from the entropy balancing procedure. The results indicate that the coefficients on *TopCulture* are positive and significant, suggesting that our main inferences remain unchanged. This result adds further credence to our claim that culture information in job postings leads to higher employee inflows.

5.4.4 Additional Robustness Analyses

We also conduct a battery of additional robustness tests to further strengthen our claims. First, we cluster standard errors in alternative ways and find that the coefficients on *JobCulture* are positive and significant at the 1% level (see Table A.6 of the online appendix). Second, we utilize an indicator variable as the dependent variable (instead of a continuous employee inflow measure). The indicator variable *TopCulture* equals one when employee inflow is in the top 30% and zero otherwise. Our inferences do not change (see Table A.7 of the online appendix). Third, instead of the culture dictionary developed by machine learning algorithms, we measure job postings culture using the manually coded dictionary of culture seed words (listed in Appendix B) and replicate our main analysis in Table 5. In Table A.8 of the online appendix, we show that our main results still hold, suggesting that they are not driven by culture-irrelevant noises present in the machine learning algorithm. Finally, we consider an unscaled measure of employee inflow as the dependent variable. The coefficients on *JobCulture* remain positive and significant at the 1% level (see Table A.9 of the online appendix), indicating that our results are not driven by our choice of scalar.

Taken together, our results consistently indicate a strong positive association between culture information in job postings and employee inflow. These findings suggest that job postings are an important source of information about firm culture for prospective employees.

6 Additional Analyses

We conclude with two sets of additional analyses. First, we assess the implications of culture information for employee outflows, instead of inflows. In addition, we also explore the role of wages in our setting.

6.1 Culture Information and Outflow

We first examine the implications of culture information for employee outflows. If culture matters to job seekers and information on job postings helps them assess a firm's culture, one might expect employees that are attracted to firms promoting culture to experience greater satisfaction and be less likely to quit. Note that this conjecture is difficult to test in our data, as we cannot readily observe an employee's job path. Instead we indirectly explore this issue by examining the association between culture information and subsequent employee outflow trends.

We estimate equation 4 but replace inflow with outflow in the previous quarter (*t-1*) and current quarter (*t*) as well as the subsequent four quarters (*t+1* through *t+4*) as the dependent variable, respectively. We report the results in Table 10. In columns (1) and (2), the coefficients on *JobCulture* are insignificant, suggesting that culture information in job postings is not associated with employee outflows during the current and prior quarters. However, in columns (3)-(6), the coefficients are negative and significant at the 1% or 10% level, suggesting that culture disclosures in job postings are negatively associated with employee outflow during the following four quarters. These results indicate that culture information in job postings is associated with lower future employee outflows, which is consistent with greater job satisfaction and a reduced likelihood of departures among new employees.

In Section 4.2, we find that firms emphasize cultural values more prominently in job postings when their culture is stronger based on other cultural indicators. This finding is consistent with bad culture firms bearing costs that deter them from misrepresenting culture. In additional analyses, we also use the outflow setting to demonstrate a potential cost to misrepresenting culture. We

expect firms that advertise culture prominently but are subsequently revealed to have weak cultures (as measured by job reviews) experience greater outflow. We define *Lying about Culture* as an indicator variable equal to one if the job posting culture score is in the top 30%, while the employee culture rating on Glassdoor is in the bottom 30% in either of the following two quarters. We regress employee outflow in the next quarter after the bad culture is revealed on *Lying about Culture*. The results are reported in Table 11. The coefficients on *Lying about Culture* are positive and significant at the 5% level, suggesting that firms that misrepresent their culture in job postings experience higher levels of future-period employee outflows.

6.2 Controlling for Advertised Salary

Second, we examine how employees value culture when presented with salary information. Disclosing salary information is rare in our sample, which is perhaps unsurprising, given the recent increase in state-level mandates for such disclosure. Job seekers may view culture information to be an alternative signal for high salary, which might induce a positive association between culture information and employee inflow that is unrelated to culture. Indeed, among the firms that do disclose salary in our sample, we find that culture scores and salary levels are positively correlated (untabulated). At the same time, it is not clear why high-salary firms do not directly disclose salary information if it helps them attract workers. In addition, studies suggest that culture is an important nonwage attribute that can substitute for salary (e.g., Maestas et al. (2018)).

To mitigate concerns related to salary, we examine a subsample of observations that provide salary information in job postings. As noted earlier, only 8% of facility-quarter observations disclose wage information at least once in our sample, so this subsample is significantly smaller than the full sample used in the main analyses. We re-estimate equation 4 but replace the control variable *SalaryDisclosed* with *LogSalary*, the natural log of minimum salaries disclosed in the job postings. We report the results from this analysis in Table 12. The coefficients on *JobCulture* are positive and significant at the 1% level across all four specifications. The results suggest that, after controlling the salary levels, culture information in job postings still positively affects inflow.

These results indicate that job seekers view culture information to be distinct from salary information.

7 Conclusion

Corporate culture represents one of the critical factors that job seekers consider when choosing a job. We provide the first examination of how firms craft their job postings to convey their cultures. In addition, we examine the labor market effects of emphasizing corporate culture in job postings.

We use state-of-the art machine learning methods to develop a comprehensive dictionary of cultural values and generate important insights. First, culture-focused job posting disclosures are informative to job seekers, as they are positively correlated with traditional signals of culture. Second, firms are more likely to provide culture-focused job postings in tight labor markets. Most importantly, the information conveyed in culture-oriented job postings ultimately helps attract more employees, as it is associated with higher worker inflows. In addition, the culture information in job postings become more valuable as information asymmetry regarding a firm's culture increases.

Our study contributes to the academic literature on corporate culture and employee job reviews. In addition, our study has practical implications. Firms can benefit from advertising cultural values in their job postings, as doing so helps them attract talent.

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Appendix A. Description of Variables

Variable	Description
Variables from BurningGlass:	
JobCulture	The average scores of five specific culture dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). Each dimension of culture scores is standardized to have mean of zero and a standard deviation of one (equal-weights).
TopCulture	An indicator variable that takes the value of 1 when *JobCulture* is in the top 30%
Education	Minimum education level (number of years) listed in job postings
Experience	Minimum experience level (number of years) listed in job postings
Managerial	An indicator variable that takes the value of 1 when a managerial skill is required in job postings, including social skill, project management skill, and people management skill
HiringIntensity	The log number of job postings published by the focal firm for a specific occupational position at a specific county in a given quarter
CompetitivePressure	The log number of job postings from industry peers in the previous quarter
PeerCulture	The average culture scores of jobs postings from industry peers in the same MSA for the same occupation and in the previous quarter
Length	The log number of words in job postings
SkillCount	The number of skills required in the job postings
SalaryDisclosed	The percentage of job postings with available salary information
LogSalary	The log minimum salaries disclosed in the job postings
Variables from Revelio:	
InflowUnscaled	The number of employees inflow
Inflow	The number of employees inflow scaled by the total number of employees, multiplying by 100
Outflow	The number of employees outflow scaled by the total number of employees, multiplying by 100
LargeFacility	An indicator variable that take the value of 1 when the total number of employees of a firm at a MSA is in the top 30% group

Variables from Glassdoor:	
Review Available	An indicator variable that takes the value of 1 when there are available reviews on Glassdoor for the focal facility in the past 1 year
High Helpfulness	An indicator variable that takes the value of 1 when the average helpfulness of reviews is in the top 30% group
Rating: Overall	The average employee overall ratings in the previous quarter on *Glassdoor*
Rating: Culture	The average employee culture ratings in the previous quarter on *Glassdoor*
Lying about Culture	An indicator variable that takes the value of 1 when job posting culture scores are in the top 30% group (*TopCulture*), while the employee ratings on corporate culture on Glassdoor are in the bottom 30% group in either of the following 2 quarters.
Other Variables:	
ECall Culture	The culture scores constructed from Q&A sections in conference calls in Li et al. (2021)
Violations	The number of labor-related violations collected from *ViolationTracker*. The labor-related violations include Occupational Safety & Health Administration, Equal Employment Opportunity Commission, Labor Department Wage and Hour Division, and National Labor Relations Board
Labor Risk	The number of ESG-related risk issues collected from *Reprisk*. The ESG-related risk issues include: Discrimination in Employment, Forced Labor, Freedom of Association and Collective Bargaining, Human Rights Abuses and Corporate Complicity, Occupational Health and Safety Issues, Poor Employment Conditions, Social Discrimination
BLM	An indicator variable that takes the value of 1 for the months after the BLM movement (starting from June 2020)
Size	Natural log of firm's lag total asset
Leverage	Leverage ratio: Liability/ Asset
Intangible	Intangible intensity: Intangible Asset/ Asset

Appendix B. Seed Words

Cultural Values	Included Words
Integrity	integrity, ethic, ethical, accountable, accountability, trust, honesty, honest, honestly, fairness, responsibility, responsible, transparency, transparent, responsibility, accountable, empowerment, alignment, empower, hold_accountable, transparency, p&l_responsibility, teamwork, organization, ethical, culture, moral, integrity, governance, business_conduct, code_ethic, value_system, core_value, corporate_governance, honesty, respectful, candor, frustrate, courtesy, acknowledge, deference, honest, candid, candor, fairness, honest, perfectly_honest, frankness, truth, humility, sincerity, candidly, ensure, continuity, reliability, quality, independence, safety, ethical, core_value, professionalism, responsible, oversight, management_responsibility, oversee, leadership_role, leadership, mission, role, supervision, transparent, clarity, predictability, certainty, disclosure, openness, consistency, governance, credibility, reputation, identity, trustworthy, entrust, credentials, loyalty, advisor_relationship, integrity, business_partner, hold_accountable, responsible, accountability, empower, responsibility, incentivize, incent, business_unit_manager, motivate, delegate, ethic, moral, ethically, unethical, integrity, corporate_governance, science-based, socially_responsible, governance, anti-competitive, honestly, candid, perfectly_honest, candidly, truth, frankly, honesty, truthfully, blunt, truthful, candidly, frankly, honest, candid, truthfully, truth, perfectly_honest, personally, honesty, frank, oversee, responsibility, accountable, supervise, coordinate, in-charge, govern, empower, competent, chief, forthright, transparency, communicative, transparently, candid, clear, disclosive, concise, respectful, straightforward
Teamwork	teamwork, collaboration, collaborate, collaborative, cooperation, cooperate, cooperative, partnership, alliance, cooperation, collaborate, partner, collaborator, collaborative, partnering, technology_partnership, co-development, co-operation, collaboration, partnership, collaborate, coordination, alliance, involvement, cooperate, working_relationship, relationship, camaraderie, passion, work_ethic, team_work, culture, professionalism, team_effort, entrepreneurship, creativity, leadership, collaboration, collaboratively, engage, collaborative, jointly, interact, cooperation, partner, coordinate, team_up, collaborate, collaboration, cooperative, collaboratively, consultative, coordinate, collegial, engage, joint, partnership, co-operate, collaborate, cooperative, cooperation, engage, co-operation, cooperatively, investigate, collaboratively, supportive, collaborative, cooperate, collegial, supportive, co-operative, collaboratively, cooperation, cooperatively, collaborate, mutually_beneficial

Innovation	innovation, innovate, innovative, creativity, creative, create, passion, passionate, efficiency, efficient, excellence, pride, creation, bring, find, build, enable, unlock, enhance, capture, maximize, attractinnovative, creativity, creatively, clever, artistic, imaginative, innovate, entrepreneurial, interactive, marketer, efficiently, cost-effective, cost-efficient, productive, effective, streamlined, inefficient, optimize, efficiency, smarter, innovative, innovation, reinvent, differentiate, product_innovation, iterate, drive_innovation,innovator, technology_innovation, technology, innovate, creative, innovation, differentiate, cutting-edge, novel, innovator, product_innovation, technology, distinctive, passion, energize, passionately, inspiring, loyal, knowledgeable, enthusiastic, motivated, excited, engaging, creative, passion, innovation, professionalism, ingenuity, inspiration, entrepreneurship, storytelling, teamwork, innovative, productivity, operating_efficiency, efficiency_gain, productivity_improvement, efficiency_improvement, process_improvement,productivity_gain, process_efficiency, manufacturing_efficiency, operational_excellence, world-class, service_excellence, competence, execution_excellence, center_excellence, leadership, competency, professionalism, excellence_initiative, product_innovation, innovate, technology_innovation, innovative, product_development, innovation_pipeline, creativity, product_technology, technology, innovation_capability, passionate, dedication, creativity, professionalism, enthusiasm, excitement, teamwork, culture, inspire, work_ethic, reputation, proud, passion, admiration, admire, hallmark, work_ethic, testament, track_record
Respect	respectful, talent, talented, employee, dignity, empowerment, empower, caring, entrepreneurial_spirit, admiration, empathy, kindness, elder, uhs, work_ethic, affection, compassion, team_member, worker, employee_base, teammate, staff, member, staff_member, executive, workforce, crew_member, empower, accountability, entrepreneurship, autonomy, teamwork, agility, passion, meritocracy, p&l_responsibility, business_leader, skill, skill_set, engineering_talent, talent_pool, management_talent, sale_talent, competency, leadership, talented, expertise, diversity, inclusion, diversification, breadth, diverse, diversified, geographic_diversity, breadth_depth, diversify, depth_breadth, product_diversity, uniqueness, incorporation, include, exclusion, deconsolidation, removal, exclude, incorporate, inclusive, elimination, discontinuation, respect, with_regard_to, regard, with_respect_to, relation, relate, as_for, pertain, vis-a-vi, related, apart_from, empowerment, interact, motivate, accountability, embrace, energize, passionate, entrepreneurial, organize, educate, cognizant, mindful, appreciative, attentive, thoughtful, friendly, abide, act_responsibly, transparent, reassure, experienced, highly_skilled, competent, high-caliber, talent, team, seasoned_experienced, deep_bench, well-experienced, top-flight

Quality	quality, customer, customer_commitment, dedication, dedicated, dedicate, customer_expectation, client, customer_base, vendor, end_customer, end_user, enterprise_customer, consumer, user, supplier, channel_partner, passion, tireless, perseverance, professionalism, hard-working, team_member, devotion, teammate, gratitude, tirelessly, product_quality, reliability, quality_level, high-quality, quality_product, service_quality, customer_service, service_level, customer_satisfaction, customer_experience, collaboration, collaboratively, engage, collaborative, jointly, interact, cooperation, partner, coordinate, team_up, collaborate, collaboration, cooperative, collaboratively, consultative, coordinate, collegial, engage, joint, partnership

Appendix C. Excerpts from Job Postings

Job Posting with High Culture Emphasis

Unique Opportunity for a Qualified Physical Therapist with a Leader in Home Healthcare...Become a Senior Advocate! SunCrest Home Care is a proud member of Almost Family, a leading provider of home health nursing, rehabilitation and personal care services. Our Senior Advocacy Mission raises the bar with programs designed to achieve better outcomes for our patients. For over 30 years, we have developed a culture that fosters innovation, clinical excellence, and integrity. Why consider choosing a career with us? Because we are committed to helping you achieve your goals. As a member of our Senior Advocacy Care Team, we are confident you will achieve more for your career with industry-leading specialty programs that enhance care and promote better outcomes for patients. You will enjoy the support of a progressive group along with great benefits, competitive pay, and flexible schedule options to fit your lifestyle. If a long tradition of world-class caring is important to you, consider joining our team. You'll feel right at home.

Job Posting with Low Culture Emphasis

General Accounting Help/Cashier Heidebreicht Chevrolet Accounting Washington Michigan: Heidebreicht Chevrolet is looking for a full Time Cashier with general accounting knowledge for busy dealership with an excellent reputation. Accounts Payable and dealership experience a plus, but not required, will train qualified person. We offer 401K, paid vacation, and excellent benefits. Pre-employment drug test, background check, valid drivers license and other screens may be required. Washington Accounts Payable Job General Accounting Help/Cashier Job Requirements Job requirements are: General accounting help; Working with customers in our service department as the main cashier.

Table 1. Summary Statistics

This table provides summary statistics of key variables for the sample on the job postings level in Panel A, a variance decomposition in Panel B, and sample statistics on the facility-quarter level sample in Panel C. Panel A and Panel C report average (Mean), standard deviation (Std.Dev.), Median, and quartiles (p25, p75). Panel B examines the sources of variation in culture disclosures of job postings. The key variable of interest, *JobCulture*, is the average culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). Each row presents the adjusted R^2 from a regression of *JobCulture* on the corresponding fixed effects. From row (1) to (5), we include firm, industry, calendar month, occupational category (SOC), and county fixed effects, respectively. In row (6) to (11), we consider the pairwise interactive fixed effect structures. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variable definitions are provided in the Appendix A.

Panel A: Job Posting Level Sample

Variable	Mean	Std.Dev.	p25	Median	p75
Integrity	0.057	0.040	0.028	0.051	0.079
Teamwork	0.041	0.033	0.016	0.035	0.059
Innovation	0.111	0.077	0.055	0.098	0.153
Respect	0.099	0.053	0.062	0.093	0.129
Quality	0.164	0.087	0.102	0.152	0.216
JobCulture	0.094	0.037	0.093	0.069	0.119
Education	8.307	7.208	0.000	12.000	16.000
Experience	1.874	2.756	0.000	0.500	3.000
Managerial	0.206	0.404	0.000	0.000	0.000
HireIntensity	1.958	0.737	1.609	2.303	2.485
CompetitivePressure	3.153	1.944	1.609	3.332	4.673
PeerCulture	0.013	0.878	-0.588	0.017	0.605
Length	5.241	0.716	4.934	5.361	5.700
SkillCount	9.852	7.592	4.000	9.000	14.000

Panel B: Variance Decomposition

Fixed Effect	**Adjusted R^2**
(1) Firm	28.83%
(2) Industry	16.16%
(3) Calendar Month	0.88%
(4) SOC	23.97%
(5) County	5.47%
(6) Firm × SOC	51.79%
(7) Firm × County	36.82%
(8) Firm × Calendar Month	38.55%
(9) SOC × County	29.36%
(10) SOC × Calendar Month	27.36%
(11) County × Calendar Month	7.24%

Panel C: Facility-Quarter Level Sample

	Mean	Std.Dev.	p25	Median	p75
Inflow	3.218	5.126	0.000	1.213	4.298
Integrity	0.054	0.032	0.033	0.051	0.072
Teamwork	0.040	0.027	0.021	0.037	0.055
Innovation	0.112	0.063	0.066	0.102	0.147
Respect	0.097	0.044	0.068	0.093	0.121
Quality	0.161	0.070	0.113	0.154	0.203
JobCulture	0.092	0.029	0.072	0.092	0.113
Education	9.852	6.238	2.000	12.000	15.000
Experience	2.319	2.301	0.000	2.000	3.635
Length	5.229	0.689	4.979	5.347	5.640
SkillCount	10.089	5.824	6.000	9.667	13.964
LogSalary	10.626	0.540	10.205	10.578	10.985
Rating: Overall	3.242	0.642	2.880	3.263	3.667
Rating: Culture	3.209	0.704	2.783	3.235	3.667
Size	9.082	1.920	7.738	8.956	10.274
ROA	0.014	0.022	0.004	0.013	0.022
Leverage	0.644	0.216	0.500	0.634	0.786
MTB	3.520	9.025	1.401	2.414	4.250
IntanRatio	0.259	0.219	0.051	0.220	0.433

Table 2. Culture Disclosures and Other Culture Measures

This table examines the association between culture disclosures in job postings and other culture measures. The dependent variable, *JobCulture*, is the average culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). We report the correlations between *JobCulture* and overall employee ratings (*Rating* : *Overall*) in column (1) or corporate culture ratings (*Rating* : *Culture*) in column (2). In column (3), the culture proxy, *EcallCulture*, is an investor-oriented metric of corporate culture based on how firms discuss their culture on conference calls (Li et al., 2021). In column (4)-(5), we consider firms' labor-related negative events as validation measures. The negative events are either labor-related violations collected from *ViolationTracker* (column (4)) or labor-related risk issues collected from *RepRisk* (column (5)). Control variables include the length of job posting, the percentage of job postings with available salary information, size, leverage, market-to-book ratio, ROA, and intangible intensity. Industry and quarter fixed effects are included in the regression. Standard errors are two-way clustered at the firm and quarter levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
Rating: Overall	0.048***				
	(5.86)				
Rating: Culture		0.063***			
		(7.72)			
ECall Culture			0.123***		
			(12.25)		
Violations				-0.212***	
				(-9.09)	
ESG Risks					-0.072***
					(-2.72)
Controls	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	40,150	34,464	71,617	102,901	102,901
Adjusted R^2	0.4117	0.4255	0.3850	0.3850	0.3750

Table 3. Determinants of Job Posting Culture Disclosure

This table reports the results from regressing culture scores on two sets of potential determinants. The dependent variable, *JobCulture*, is the average culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). Panel A presents the result for employers' requirements on education (column (1)-(2)), experiences (column (3)-(4)), and managerial skills (column (5)-(6)). In Panel B, we measure firms' culture disclosure pressure from labor markets using their own recruiting intensity (column (1)-(2)), the competitive recruiting pressure from industry peers (column (3)-(4)), or culture disclosure intensity of jobs postings from industry peers in the same MSA for the same occupation and in the previous quarter (column (5)-(6)). In both panels, job posting controls include the length of job postings, the percentage of job postings with available salary information, and the number of skills required by employers. Firm level controls include size, leverage, market-to-book ratio, ROA, and intangible intensity. Firm×quarter, SOC, and county fixed effects are included in all odd columns. Firm×SOC and county×quarter fixed effects are included in all even columns. Standard errors are two-way clustered at the firm and month levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Panel A: Requirements on Education, Experience, and Managerial Skill

	Education		**Experience**		**Managerial**	
	(1)	(2)	(3)	(4)	(5)	(6)
Education	0.004***	0.002**				
	(4.95)	(2.43)				
Experience			0.032***	0.026***		
			(18.51)	(16.83)		
Managerial					0.188***	0.152***
					(16.63)	(11.62)
Posting Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
SOC FE	Yes	No	Yes	No	Yes	No
County FE	Yes	No	Yes	No	Yes	No
Firm×Quarter FE	Yes	No	Yes	No	Yes	No
Firm×SOC FE	No	Yes	No	Yes	No	Yes
County×Quarter FE	No	Yes	No	Yes	No	Yes
Observations	24,408,279	24,196,194	24,408,279	24,196,194	24,408,279	24,196,194
Adjusted R^2	0.5710	0.6225	0.5755	0.6252	0.5747	0.6247

Panel B: Competitive Labor Market

	Hire Intensity		**Competitive Pressure**		**Peer Culture**	
	(1)	(2)	(3)	(4)	(5)	(6)
HireIntensity	0.020***	0.025***				
	(6.81)	(8.94)				
CompetitivePressure			0.005**	0.010***		
			(2.02)	(4.61)		
PeerCulture					0.342***	0.274***
					(41.09)	(31.28)
Posting Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
SOC FE	Yes	No	Yes	No	Yes	No
County FE	Yes	No	Yes	No	Yes	No
Firm×Quarter FE	Yes	No	Yes	No	Yes	No
Firm×SOC FE	No	Yes	No	Yes	No	Yes
County×Quarter FE	No	Yes	No	Yes	No	Yes
Observations	24,408,279	24,196,194	24,408,279	24,196,194	22,134,766	21,985,173
Adjusted R^2	0.5707	0.6226	0.5706	0.6225	0.6258	0.6538

Table 4. Culture Disclosures and Employee Inflow

This table reports the results from facility-quarter level regressions of scaled employee inflow on the average job posting culture scores. The dependent variable, *Inflow*, is measured as employee inflow scaled by the total number of employees, multiplied by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Control variables include employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture	0.455***	0.218***	0.208***	0.196***
	(11.74)	(8.36)	(7.40)	(7.17)
Education		0.010**	0.004	0.006
		(2.08)	(0.91)	(1.30)
Experience		0.014	0.025**	0.023**
		(1.31)	(2.28)	(2.15)
Length		0.026	0.002	0.016
		(0.70)	(0.04)	(0.38)
HiringIntensity		0.207***	0.384***	0.377***
		(10.80)	(12.76)	(12.36)
SkillCount		0.026***	0.018***	0.018***
		(5.10)	(2.99)	(3.17)
SalaryDisclosed		-0.023	0.142***	0.070
		(-0.50)	(3.11)	(1.51)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	1,248,305	1,238,584	1,236,479	1,236,477
Adjusted R^2	0.0026	0.0420	0.0644	0.0710

Table 5. Culture Disclosures, Employee Inflow and Information Asymmetry

This table provides results examining how the relation between culture disclosure in job postings and employees inflow varies with information asymmetry between job seekers and employers. The dependent variable, *Inflow*, is measured as employee inflow scaled by the total number of employees, multiplied by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). In column (1)-(2), we interact *JobCulture* with an indicator variable that takes the value of 1 when the employees team size is in top 30% (*Large Facility*). In column (3)-(4), the information asymmetry proxy is an indicator variable that takes the value of 1 when there are available reviews on *Glassdoor* for the focal facility in the past 1 year (*Review Available*). In column (5)-(6), we interact *JobCulture* with an indicator variable that takes the value of 1 when the average helpfulness of reviews is in top 30% (*High Helpfulness*). We include the standard sets of job posting and firm controls. Facility and quarter fixed effects are included in odd columns. Facility and MSA×quarter fixed effects are included in even columns. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	Large Facility		**Review Available**		**High Helpfulness**	
	(1)	(2)	(3)	(4)	(5)	(6)
JobCulture	0.279***	0.282***	0.220***	0.211***	0.212***	0.202***
	(7.81)	(8.13)	(7.36)	(7.23)	(7.48)	(7.29)
LargeFacility × *JobCulture*	-0.224***	-0.268***				
	(-5.80)	(-7.14)				
Review Available × *JobCulture*			-0.100**	-0.117***		
			(-2.45)	(-2.82)		
High Helpfulness × *JobCulture*					-0.202***	-0.241***
					(-3.40)	(-3.95)
Information Asymmetry Proxy	0.416**	0.344*	-0.402***	-0.420***	-0.067	-0.060
	(2.25)	(1.84)	(-7.15)	(-7.77)	(-0.89)	(-0.80)
Job Posting Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	No	Yes	No	Yes	No
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes	No	Yes
Observations	1,236,479	1,236,477	1,236,479	1,236,477	1,236,479	1,236,477
Adjusted R^2	0.0645	0.0711	0.0645	0.0711	0.0644	0.0710

Table 6. Culture Disclosures, Employee Inflow and Social Movements

This table provides results examining how the relation between culture disclosure in job postings and scaled employees inflow changes after the *Black Lives Matter (BLM)* movement, when corporate culture became more important to job seekers. The sample consists of 327,213 facility-month level observations in a 14-month period centered around the murder of George Floyd, ranging from November 2019 to December 2020. The dependent variable, $Inflow$, is measured as employee inflow scaled by the total number of employees, multiplied by 100. The key variables of interest are standardized culture scores of the five dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*) in column (1) to (5), respectively. The five dimensions of cultures are divided into either *BLM-Relevant* group (column (1)-(2)) or *BLM-Irrelevant* group (column (3)-(5)). We interact each dimension of culture with an indicator variable that takes the value of 1 for the months after the BLM movement (starting from June 2020). We include the standard sets of job posting and firm controls. Facility and MSA×month fixed effects are included in all the columns. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	BLM Relevant		*BLM Irrelevant*		
	(1) Integrity	(2) Respect	(3) Teamwork	(4) Innovation	(5) Quality
BLM × *Integrity*	0.035***				
	(2.72)				
BLM × *Respect*		0.049***			
		(2.70)			
BLM × *Teamwork*			-0.027**		
			(-2.20)		
BLM × *Innovation*				-0.024	
				(-1.35)	
BLM × *Quality*					-0.039***
					(-2.98)
ComponentScore	-0.001	-0.024*	0.027***	0.020	0.040***
	(-0.06)	(-1.89)	(2.71)	(1.63)	(3.59)
Job Posting Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes
MSA×Month FE	Yes	Yes	Yes	Yes	Yes
Observations	327,213	327,213	327,213	327,213	327,213
Adjusted R^2	0.2167	0.2167	0.2166	0.2166	0.2167

Table 7. Job-Level Panel Analysis

This table provides robustness analysis of main results in Table 4 on facility-SOC-quarter level. The dependent variable, $Inflow$, is measured as employee inflow scaled by the total number of employees, multiplied by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility×SOC and quarter fixed effects. The quarter fixed effect is strengthened by MSA×quarter and SOC×quarter fixed effects in column (4). Control variables include employers' requirements on education ($Education$) and experiences ($Experience$), the length of job postings (*Length*), the number of job postings in the current quarter ($HiringIntensity$), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are clustered at the firm, MSA, and SOC×quarter levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture	0.309***	0.067***	0.103***	0.092***
	(6.72)	(2.60)	(4.15)	(4.19)
Education		0.007*	-0.002	-0.001
		(1.65)	(-0.49)	(-0.15)
Experience		-0.010	0.017**	0.017**
		(-1.18)	(2.17)	(2.26)
Length		-0.039	0.022	0.017
		(-1.09)	(0.57)	(0.47)
HiringIntensity		0.915***	0.701***	0.686***
		(17.87)	(11.16)	(11.90)
SkillCount		0.012***	0.002	0.002
		(3.13)	(0.47)	(0.44)
SalaryDisclosed		0.060	0.069	0.059
		(1.22)	(1.36)	(1.18)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility×SOC FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
SOC×Quarter FE	No	No	No	Yes
Observations	2,089,600	2,086,992	2,046,298	2,046,271
Adjusted R^2	0.0011	0.0238	0.0583	0.0623

Table 8. Dynamic Effects

This table provides robustness analyses that vary the lead-lag structure between culture disclosures in job postings and employee inflow. Column (1) and (2) report the results when using scaled employee inflow in the previous quarter and current quarter as the dependent variables, respectively. The dependent variables in columns (3)-(6) are scaled employees inflow in the following four quarters, respectively. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). We include the standard sets of job posting and firm controls. Firm×MSA and MSA×quarter fixed effects are included. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) Lag 1Q	(2) No Lag	(3) Forward 1Q	(4) Forward 2Q	(5) Forward 3Q	(6) Forward 4Q
JobCulture	0.026	0.068**	0.196***	0.053**	-0.017	-0.015
	(0.93)	(2.48)	(7.17)	(2.16)	(-0.66)	(-0.56)
Education	0.003	0.006	0.006	0.006	0.006	0.009**
	(0.76)	(1.51)	(1.30)	(1.32)	(1.37)	(2.10)
Experience	0.026***	0.027***	0.023**	0.028***	0.021*	0.027**
	(2.61)	(2.66)	(2.15)	(2.67)	(1.78)	(2.28)
Length	0.114**	-0.000	0.016	0.029	0.021	0.050
	(2.45)	(-0.01)	(0.38)	(0.63)	(0.48)	(1.06)
HiringIntensity	0.397***	0.394***	0.377***	0.377***	0.389***	0.388***
	(13.62)	(13.10)	(12.36)	(12.17)	(12.20)	(12.51)
SkillCount	0.015**	0.019***	0.018***	0.017***	0.018***	0.014***
	(2.47)	(3.41)	(3.17)	(2.95)	(3.11)	(2.61)
SalaryDisclosed	0.046	0.040	0.070	0.061	0.070	0.077
	(0.90)	(0.82)	(1.51)	(1.18)	(1.36)	(1.41)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
MSA×Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,231,520	1,629,348	1,236,477	1,149,740	1,090,644	1,036,085
Adjusted R^2	0.0702	0.0698	0.0710	0.0662	0.0656	0.0673

Table 9. Entropy-Balancing Analysis

This table provides the robustness evidence of main results in Table 4 by entropy-balancing the treatment and control groups. The treatment variable, *TopCulture*, is defined as an indicator variable that takes the value of 1 when the average standardized culture scores of five specific dimensions are in the top 30% of the sample. We identify observation weights for facility-quarter observations that are not in the top 30% group such that the first and second moments of covariates in the weighted sample are identical to those in the top 30%. We include corporate culture rating (*Rating : Culture*), employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), the percentage of job postings with available salary information (*SalaryDisclosed*), a set of firm-level characteristics (size, leverage, market-to-book ratio, ROA, and intangible intensity), a set of quarter dummies, and a set of MSA dummies for entropy-balancing. In Panel A, we compare the mean and the standard deviation between *TopCulture* and control group after entropy matching. In Panel B, the dependent variable, *Inflow*, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Panel A: Covariate distributions after using entropy balancing

	TopCulture		**Control**		**Balance Stats**	
	Mean	Std.	Mean	Std.	Diff	Var. Ratio
Rating: Culture	3.346	0.694	3.346	0.694	0.000	1.000
Education	11.232	5.723	11.232	5.723	0.000	1.000
Experience	3.013	2.475	3.013	2.475	-0.000	1.000
Length	5.405	0.560	5.405	0.560	0.000	1.000
HiringIntensity	2.928	2.022	2.927	2.022	0.000	1.000
SkillCount	12.201	5.813	12.201	5.813	0.000	1.000
SalaryDisclosed	0.204	0.403	0.204	0.403	-0.000	1.000
Size	8.922	1.749	8.922	1.749	0.000	1.000
ROA	0.014	0.026	0.014	0.026	0.000	1.000
Leverage	0.618	0.214	0.618	0.214	0.000	1.000
MTB	4.525	8.667	4.525	8.667	0.000	1.000
IntanRatio	0.261	0.224	0.261	0.224	0.000	1.000

Panel B: Entropy Matching Results

	(1)	(2)	(3)	(4)
TopCulture	0.834***	0.253***	0.347***	0.321***
	(8.83)	(4.99)	(5.20)	(5.05)
Rating: Culture		0.117*	0.171***	0.194***
		(1.89)	(3.35)	(3.88)
Education		0.011*	0.013*	0.014**
		(1.79)	(1.93)	(2.11)
Experience		-0.008	-0.011	-0.012
		(-0.62)	(-0.82)	(-0.89)
Length		0.021	-0.043	-0.038
		(0.33)	(-0.68)	(-0.58)
HiringIntensity		0.207***	0.441***	0.436***
		(9.78)	(12.07)	(12.35)
SkillCount		0.021***	0.021***	0.021***
		(3.34)	(2.93)	(3.01)
SalaryDisclosed		0.018	0.226***	0.134**
		(0.26)	(3.51)	(1.99)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	728,068	723,366	719,572	719,566
Adjusted R^2	0.0021	0.0718	0.0988	0.1171

Table 10. Culture Disclosures and Employee Outflow

This table reports the results from facility-quarter level regressions of scaled employee outflows on the average job posting culture scores with various lead-lag structure. Column (1) and (2) report the results when using scaled employee outflows in the previous quarter and current quarter as the dependent variable, respectively. The dependent variables in columns (3)-(6) are scaled employee outflows in the following four quarters, respectively. The key variable of interest, *JobCulture*, is the average culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). We include the standard sets of job posting and firm controls. Firm×MSA and MSA×quarter fixed effects are included. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) Lag 1Q	(2) No Lag	(3) Forward 1Q	(4) Forward 2Q	(5) Forward 3Q	(6) Forward 4Q
JobCulture	0.020	0.034	-0.060**	-0.083***	-0.099***	-0.050*
	(0.76)	(1.39)	(-2.59)	(-3.51)	(-3.51)	(-1.87)
Education	0.009**	0.005	0.006	0.007	0.004	0.007
	(2.55)	(1.61)	(1.44)	(1.57)	(1.13)	(1.60)
Experience	-0.017*	-0.009	-0.007	-0.005	-0.004	-0.002
	(-1.78)	(-1.00)	(-0.65)	(-0.50)	(-0.36)	(-0.17)
Length	-0.084*	-0.055	-0.059	-0.080	-0.127**	-0.101**
	(-1.78)	(-1.35)	(-1.33)	(-1.62)	(-2.50)	(-2.06)
HiringIntensity	-0.059***	-0.057***	-0.066***	-0.076***	-0.069***	-0.083***
	(-3.26)	(-3.21)	(-3.39)	(-3.85)	(-3.38)	(-4.05)
SkillCount	0.007	0.004	0.006	0.010*	0.015***	0.008
	(1.38)	(0.79)	(1.30)	(1.93)	(2.82)	(1.62)
SalaryDisclosed	-0.023	-0.019	-0.025	-0.023	-0.064	-0.035
	(-0.51)	(-0.41)	(-0.49)	(-0.44)	(-1.20)	(-0.65)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
MSA×Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,231,520	1,629,348	1,236,477	1,149,740	1,090,644	1,036,085
Adjusted R^2	0.0695	0.0656	0.0723	0.0709	0.0690	0.0708

Table 11. Cost of Lying

This table reports the evidence of the costs of lying about corporate culture. The dependent variable, *Outflow*, is measured as the number of employees outflow scaled by the total number of employees, multiplying by 100. The key variable of interest, *Lying about Culture*, is an indicator variable that takes the value of 1 when job posting culture score is in the top 30% group (*TopCulture*), while the employee ratings on corporate culture on *Glassdoor* are in the bottom 30% group in either of the following two quarters. We include the standard sets of job posting and firm controls. Facility and quarter fixed effects are included in column (1). Facility and MSA×quarter fixed effects are included in column (2). Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)
Lying about Culture	0.153**	0.164**
	(2.11)	(2.27)
Education	0.006	0.005
	(1.59)	(1.19)
Experience	-0.048***	-0.046***
	(-4.89)	(-4.67)
Length	-0.012	-0.027
	(-0.30)	(-0.66)
HiringIntensity	-0.040***	-0.039***
	(-3.53)	(-3.44)
SkillCount	-0.009**	-0.009**
	(-2.05)	(-1.96)
SalaryDisclosed	-0.101**	-0.075*
	(-2.52)	(-1.83)
Size	0.511***	0.508***
	(8.80)	(8.79)
ROA	3.853***	3.970***
	(3.77)	(3.92)
MTB	0.003*	0.004*
	(1.72)	(1.88)
IntanRatio	-1.701***	-1.699***
	(-6.82)	(-6.88)
Firm Controls	Yes	Yes
Quarter FE	Yes	No
Facility FE	Yes	Yes
MSA×Quarter FE	No	Yes
Observations	964,321	964,302
Adjusted R^2	0.0648	0.0729

Table 12. Controlling for Advertised Salary

This table reports the results from facility-quarter level regressions of scaled employees inflow on average culture scores controlling for available salary information in the job postings. The dependent variable, *Inflow*, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). *LogSalary* is the log of average minimum salaries disclosed in the job postings. MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Control variables include employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture	0.553***	0.258***	0.238***	0.230***
	(8.47)	(4.59)	(3.76)	(3.94)
LogSalary	0.107	0.064	0.039	0.054
	(1.01)	(0.96)	(0.48)	(0.64)
Education		0.023**	0.018*	0.019**
		(2.31)	(1.90)	(2.11)
Experience		0.001	0.027	0.020
		(0.05)	(1.28)	(0.97)
Length		-0.028	-0.096	-0.082
		(-0.25)	(-0.85)	(-0.70)
HiringIntensity		0.189***	0.439***	0.439***
		(7.86)	(8.34)	(8.73)
SkillCount		0.022**	0.013	0.014
		(2.01)	(0.91)	(1.07)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	310,297	300,007	297,910	296,122
Adjusted R^2	0.0031	0.0575	0.1019	0.1270

Communicating Corporate Culture in Labor Markets: Evidence from Job Postings

Online Appendix

In this online appendix, we provide detailed results of additional analyses.

In Table A.1, we report the detailed relations between the requirements on education and experience and culture discussions in job postings. Specifically, in Panel A, we create 5 category variables when the job requires a minimum degree in high school, some years in college, bachelor, master, and PhD, respectively. In Panel B, we categorize the requirements on experience into 4 groups: 1-2 years, 2-5 years, 5-10 years, and more than 10 years. In general, the results are consistent with that firms disclose culture information more prominently in job positions that require higher education and experience.

In Table A.2, we examine the determinants of the disclosure of each cultural dimension in job postings. Across the five cultural dimensions, we find consistent results suggesting that firms tend to provide more information about culture for job positions that require more experience and managerial skills. We also find that firms tend to discuss culture more when peer firms provide more information about culture.

In Table A.3, we re-examine equation 4 and use *TopCulture*, an indicator variable equal to one when *JobCulture* is in the top 30% of the sample distribution as the independent variable. The coefficients on *TopCulture* are positive and significant at the 1% level. This is consistent with our main inference that job postings highlighting corporate culture are associated with significantly higher levels of inflow. In terms of the economic magnitude, the results indicate that facilities in the top 30% of the sample distribution experiences 0.28% higher inflow.

In Table A.4, we consider the various sub-components of our composite culture measure. We re-examine equation 4 and use the score of each cultural dimension as the independent variable, respectively. The results indicate that all of the five sub-components are positively and significantly associated with employee inflow, suggesting the effect of culture information in job postings is relevant for all of the cultural dimensions.

In Table A.5, we further strengthen our claim regarding the informational value of job postings by controlling for the culture proxies discussed in Section 3.2. Columns (1) and (2) report results after we control for overall employee ratings and ratings on corporate culture,

respectively. Column (3) reports the result after we control for the conference call based culture measure. Columns (4)-(5) report the results after we control for labor-related violations and risk issues, respectively. After controlling for additional culture proxies, the coefficients on *JobCulture* remain positive and significant at the 1% level across the five columns. The economic magnitudes are also similar across the five columns. These findings suggest that inflows are correlated with the culture information provided in job postings and that our effects are not driven by other external proxies for the underlying culture of the firm.

In Table A.6, we cluster standard errors in alternative ways and assess the robustness of our main results. We re-estimate equation 4 and find that the coefficients on *JobCulture* are positive and significant at the 1% level when we cluster standard errors at the firm, facility, facility and quarter, and quarter and MSA levels.

In Table A.7, we utilize an indicator variable as the dependent variable (instead of a continuous employee inflow measure) equal to one if the employee inflow is in the top 30% of the sample distribution and zero otherwise. The indicator variable *TopCulture* equals one when employee inflow is in the top 30% and zero otherwise. Our inferences do not change. In terms of the economic magnitude, a facility is 0.6% more likely to be in the top 30% of employee inflow with a one-standard-deviation increase in *JobCulture*.

In Table A.8, instead of the culture dictionary developed by machine learning algorithms, we measure job postings culture using the manually coded seed words dictionary of culture (listed in Appendix B) and replicate our main analysis in Table 4. Our main results still hold, suggesting that they are not driven by the culture-irrelevant noises present in the black box of machine learning algorithms.

In Table A.9, we use an unscaled measure of employee inflow as the dependent variable, the coefficients on *JobCulture* remain positive and significant at the 1% level, indicating our results are not driven by the denominator used to scale employee inflow.

Table A.1. Levels of Education and Experience Requirements

This table provides results from determinants analysis with detailed levels of education and experience requirements. The dependent variable, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). In Panel A, we focus on five levels of education requirements, including high school, some college degree, bachelor, master, and PhD. In Panel B, we categorize experience requirements into four categories: 1-2 Years, 2-5 Years, 5-10 Years, and above 10 Years. We include the standard sets of job posting and firm controls. Firm×quarter, SOC, and county fixed effects are included in column (1). Firm×SOC and county×quarter fixed effects are included in column (2). Standard errors are two-way clustered at the firm and quarter levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Panel A: Detailed Level of Education Requirements

	(1)	(2)
HighSchool	-0.167***	-0.160***
	(-10.56)	(-9.19)
College	-0.029	-0.062***
	(-1.33)	(-3.09)
Bachelor	0.178***	0.129***
	(13.34)	(12.30)
Master	0.295***	0.239***
	(14.81)	(15.23)
PhD	0.258***	0.186***
	(8.69)	(4.29)
Posting Controls	Yes	Yes
Firm Controls	Yes	Yes
SOC FE	Yes	No
County FE	Yes	No
Firm×Quarter FE	Yes	No
Firm×SOC FE	No	Yes
County×Quarter FE	No	Yes
Observations	24,408,279	24,196,194
Adjusted R^2	0.5803	0.6277

Panel B: Detailed Level of Experience Requirements

	(1)	(2)
1-2Years	-0.076***	-0.099***
	(-5.82)	(-6.67)
2-5Years	0.050***	0.023**
	(4.77)	(2.27)
5-10Years	0.249***	0.194***
	(14.62)	(12.28)
>10Years	0.362***	0.307***
	(18.09)	(16.69)
Posting Controls	Yes	Yes
Firm Controls	Yes	Yes
SOC FE	Yes	No
County FE	Yes	No
Firm×Quarter FE	Yes	No
Firm×SOC FE	No	Yes
County×Quarter FE	No	Yes
Observations	24,408,279	24,196,194
Adjusted R^2	0.5765	0.6266

Table A.2. Determinants of Five Dimensions of Culture Scores

This table reports the results from regressing each of the five dimensions of culture scores on two sets of potential determinants. The dependent variable is *Integrity* in column (1), *Teamwork* in column (2), *Innovation* in column (3), *Respect* in column (4), and *Quality* in column (5). The potential determinants include employers' requirements on education (*Education*), experiences (*Experience*), and managerial skills (*Managerial*), their own recruiting intensity (*HiringIntensity*), the competitive recruiting pressure from industry peers (*CompetitivePressure*), and culture disclosure intensity of jobs postings from industry peers in the same MSA for the same occupation and in the previous quarter (*PeerCulture*). We include the standard sets of job posting and firm controls. Firm×SOC and county×quarter fixed effects are included. Standard errors are two-way clustered at the firm and quarter levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) Integrity	(2) Teamwork	(3) Innovation	(4) Respect	(5) Quality
Education	-0.001	0.004***	-0.003***	-0.001	0.000
	(-0.87)	(3.64)	(-3.35)	(-1.07)	(0.43)
Experience	0.005***	0.026***	0.006***	0.004***	0.028***
	(3.43)	(15.32)	(4.50)	(3.23)	(19.85)
Managerial	0.071***	0.091***	0.048***	0.045***	0.140***
	(4.92)	(7.37)	(4.90)	(4.00)	(13.36)
CompetitivePressure	-0.005*	0.004	0.004	0.007*	0.001
	(-1.70)	(1.45)	(1.27)	(1.94)	(0.48)
HireIntensity	0.004	0.020***	0.011***	-0.009**	0.014***
	(0.98)	(6.36)	(2.70)	(-2.29)	(5.28)
PeerCulture	0.173***	0.185***	0.162***	0.180***	0.135***
	(26.43)	(32.77)	(32.97)	(34.58)	(33.99)
Posting Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Firm×SOC FE	Yes	Yes	Yes	Yes	Yes
County×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	21,985,173	21,985,173	21,985,173	21,985,173	21,985,173
Adjusted R^2	0.4825	0.4871	0.5693	0.5204	0.6626

Table A.3. High Culture Disclosure Indicator and Subsequent Employees Inflow

This table reports the results from facility-quarter level regressions of scaled employee inflow on high culture disclosure indicators. The dependent variable, $Inflow$, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. The key variable of interest, $TopCulture$, is an indicator variable equal to one when $JobCulture$ is in the top 30%. MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Control variables include employers' requirements on education ($Education$) and experiences ($Experience$), the length of job postings ($Length$), the number of job postings in the current quarter ($HiringIntensity$), the number of skill requirements ($SkillCount$), and the percentage of job postings with available salary information ($SalaryDisclosed$). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
TopCulture	0.703***	0.215***	0.304***	0.281***
	(9.74)	(5.90)	(6.41)	(6.12)
Education		0.011**	0.004	0.006
		(2.24)	(0.98)	(1.37)
Experience		0.016	0.025**	0.023**
		(1.57)	(2.33)	(2.20)
Length		0.048	0.019	0.032
		(1.28)	(0.43)	(0.78)
HiringIntensity		0.210***	0.386***	0.378***
		(10.91)	(12.79)	(12.39)
SkillCount		0.028***	0.018***	0.018***
		(5.33)	(3.05)	(3.23)
SalaryDisclosed		-0.030	0.140***	0.068
		(-0.64)	(3.05)	(1.46)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	1,248,305	1,238,584	1,236,479	1,236,477
Adjusted R^2	0.0021	0.0419	0.0644	0.0710

Table A.4. Five Dimensions of Culture and Subsequent Employee Inflows

This table reports the results from facility-quarter level regressions of employee inflow on the five specific dimensions of culture scores. The dependent variable, *Inflow*, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. The key variable of interest, *ComponentScore*, is the standardized culture score of each of the five cultural dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). Control variables include employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Facility and MSA×quarter fixed effects are included. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) Integrity	(2) Teamwork	(3) Innovation	(4) Respect	(5) Quality
ComponentScore	0.112***	0.115***	0.124***	0.054*	0.143***
	(4.28)	(4.39)	(5.35)	(1.87)	(5.14)
Education	0.006	0.006	0.007	0.006	0.006
	(1.32)	(1.29)	(1.51)	(1.40)	(1.44)
Experience	0.025**	0.024**	0.024**	0.025**	0.023**
	(2.35)	(2.28)	(2.23)	(2.35)	(2.05)
Length	0.027	0.038	0.026	0.032	0.034
	(0.66)	(0.91)	(0.64)	(0.79)	(0.77)
HiringIntensity	0.374***	0.376***	0.377***	0.377***	0.376***
	(12.37)	(12.38)	(12.40)	(12.37)	(16.12)
SkillCount	0.018***	0.018***	0.020***	0.019***	0.018***
	(3.16)	(3.13)	(3.53)	(3.38)	(3.35)
SalaryDisclosed	0.064	0.064	0.064	0.062	0.066
	(1.39)	(1.38)	(1.38)	(1.33)	(1.50)
Firm Controls	Yes	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes
MSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	1,236,477	1,236,477	1,236,477	1,236,477	1,236,477
Adjusted R^2	0.0709	0.0709	0.0709	0.0709	0.0710

Table A.5. Controlling for Other Culture Measures

This table replicate the main analysis in Table 4 after controlling for other culture measures. The dependent variable, *Inflow*, is measured as employee inflow scaled by the total number of employees, multiplied by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). We control overall employee ratings (*Rating* : *Overall*) in column (1) and corporate culture ratings (*Rating* : *Culture*) in column (2). In column (3), *EcallCulture* is an investor-oriented metric of corporate culture based on how firms discuss their culture on conference calls (Li et al., 2021). In column (4)-(5), we consider firms' labor-related negative events as additional controls. The negative events are either labor-related violations collected from *ViolationTracker* (column (4)) or labor-related risk issues collected from *RepRisk* (column (5)). We include the standard sets of job posting and firm controls. Facility and MSA×quarter fixed effects are included. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
JobCulture	0.216***	0.260***	0.157***	0.196***	0.197***
	(6.19)	(6.46)	(5.66)	(7.17)	(7.16)
Rating: Overall	0.095**				
	(2.35)				
Rating: Culture		0.049			
		(1.19)			
ECall Culture			-0.150***		
			(-2.94)		
Violations				0.049	
				(0.68)	
Risk Issues					0.156
					(1.33)
Job Posting Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes
MSA×Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	808,029	703,587	847,360	1,236,477	1,236,477
Adjusted R^2	0.0737	0.0721	0.0681	0.0710	0.0710

Table A.6. Alternative SE Clusters of Main Regressions

This table reports the results from robustness tests of main analysis with alternative standard error clusters. The dependent variable, *Inflow*, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). In column (1), standard errors are clustered at firm level. In column (2), standard errors are clustered at Facility level. In column (3), standard errors are two-way clustered at the facility and quarter levels. In column (4), standard errors are clustered at firm, quarter, and MSA level. We include the standard sets of job posting and firm controls. Facility and MSA×quarter fixed effects are included. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture	0.196***	0.196***	0.196***	0.196***
	(7.15)	(10.88)	(6.07)	(5.51)
Education	0.006	0.006*	0.006	0.006
	(1.30)	(1.80)	(1.47)	(1.28)
Experience	0.023**	0.023***	0.023**	0.023*
	(2.25)	(2.82)	(2.04)	(1.80)
Length	0.016	0.016	0.016	0.016
	(0.37)	(0.49)	(0.35)	(0.34)
HiringIntensity	0.377***	0.377***	0.377***	0.377***
	(13.25)	(37.03)	(16.04)	(10.67)
SkillCount	0.018***	0.018***	0.018***	0.018***
	(3.17)	(4.68)	(3.34)	(2.76)
SalaryDisclosed	0.070	0.070**	0.070	0.070
	(1.58)	(1.97)	(1.58)	(1.48)
Firm Controls	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes
MSA×Quarter FE	Yes	Yes	Yes	Yes
Cluster: Firm	Yes	No	No	Yes
Cluster: Facility	No	Yes	Yes	No
Cluster: Quarter	No	No	Yes	Yes
Cluster: MSA	No	No	No	Yes
Observations	1,236,477	1,236,477	1,236,477	1,236,477
Adjusted R^2	0.0710	0.0710	0.0710	0.0710

Table A.7. Indicator Variable for High Employees Inflow

This table reports the robustness results of main analysis in Table 4. The dependent variable is an indicator variable equal to one for observations in the top 30% of scaled employees inflow, and zero otherwise. In column (1), the key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). In column (2), the key variable of interest, *TopCulture*, is an indicator variable equal to one for observations in the top 30% of the composite culture score, and zero otherwise. We include the standard sets of job posting and firm controls. Facility and MSA×quarter fixed effects are included. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)
JobCulture	0.006***	
	(7.73)	
TopCulture		0.008***
		(6.05)
Education	0.000**	0.000**
	(2.29)	(2.37)
Experience	0.001**	0.001**
	(2.18)	(2.28)
Length	-0.001	-0.000
	(-0.47)	(-0.13)
HiringIntensity	0.010***	0.010***
	(11.58)	(11.61)
SkillCount	0.001***	0.001***
	(4.19)	(4.29)
SalaryDisclosed	0.001	0.001
	(0.54)	(0.48)
Firm Controls	Yes	Yes
Facility FE	Yes	Yes
MSA×Quarter FE	Yes	Yes
Observations	1,236,477	1,236,477
Adjusted R^2	0.4550	0.4550

Table A.8. Measuring Culture using Seed Words

This table provides robustness analysis of main results in Table 4 by measuring culture disclosure in job postings using seed words only. The dependent variable, $Inflow$, is measured by the number of employees inflow scaled by the total number of employees, multiplying by 100. The key variable of interest, *JobCulture_Seed*, is the average standardized culture scores captured by seed words about culture. MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Control variables include employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture_Seed	0.045**	0.034**	0.058**	0.056**
	(2.13)	(2.40)	(2.37)	(2.29)
Education		0.011**	0.004	0.006
		(2.26)	(1.01)	(1.42)
Experience		0.018*	0.027**	0.025**
		(1.75)	(2.49)	(2.35)
Length		0.050	0.018	0.031
		(1.34)	(0.40)	(0.74)
HiringIntensity		0.210***	0.383***	0.376***
		(10.95)	(12.78)	(12.38)
SkillCount		0.029***	0.019***	0.019***
		(5.51)	(3.24)	(3.42)
SalaryDisclosed		-0.035	0.132***	0.059
		(-0.76)	(2.87)	(1.27)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	1,248,305	1,238,584	1,236,479	1,236,477
Adjusted R^2	0.0015	0.0419	0.0643	0.0709

Table A.9. Unscaled Employees Inflow as Dependent Variables

This table provides robustness analysis of main results in Table 4. The dependent variable, *InflowUnscaled*, is measured by the raw number of employees inflow. The key variable of interest, *JobCulture*, is the average standardized culture scores of five specific dimensions (*Integrity*, *Teamwork*, *Innovation*, *Respect*, and *Quality*). MSA×quarter and firm×quarter fixed effects are included in column (2). In column (3), we include facility and quarter fixed effect. The quarter fixed effect is strengthened by MSA×quarter fixed effect in column (4). Control variables include employers' requirements on education (*Education*) and experiences (*Experience*), the length of job postings (*Length*), the number of job postings in the current quarter (*HiringIntensity*), the number of skill requirements (*SkillCount*), and the percentage of job postings with available salary information (*SalaryDisclosed*). We also include a series of firm controls, including size, leverage, market-to-book ratio, ROA, and intangible intensity. Standard errors are two-way clustered at the firm and MSA levels. All variables are winsorized at the top and bottom 1% of the cross-sectional distribution. Variables are defined in the Appendix A. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
JobCulture	4.008***	1.487***	0.158***	0.140***
	(6.57)	(7.63)	(3.38)	(3.10)
Education		-0.040	-0.005	-0.006
		(-1.22)	(-0.49)	(-0.52)
Experience		0.166**	-0.038**	-0.031**
		(2.15)	(-2.46)	(-2.03)
Length		-0.886***	0.030	-0.016
		(-3.35)	(0.27)	(-0.14)
HiringIntensity		8.172***	0.963***	0.948***
		(15.16)	(10.78)	(10.84)
SkillCount		0.141***	0.001	0.004
		(3.99)	(0.17)	(0.59)
SalaryDisclosed		1.407***	-0.121	-0.037
		(2.94)	(-1.40)	(-0.48)
Firm Controls	Yes	No	Yes	Yes
Quarter FE	No	No	Yes	No
Facility FE	No	No	Yes	Yes
MSA×Quarter FE	No	Yes	No	Yes
Firm×Quarter FE	No	Yes	No	No
Observations	1,248,305	1,238,584	1,236,479	1,236,477
Adjusted R^2	0.0502	0.4681	0.8987	0.9002