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TEARING THE PAPER CEILING:
THE IMPACT OF STATE COMMITMENTS TO REMOVE DEGREE REQUIREMENTS
ON PUBLIC AWARENESS AND JOB OPPORTUNITIES FOR STARS

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Tearing the Paper Ceiling: The Impact of State Commitments to Remove Degree Requirements on Public Awareness and Job Opportunities for STARs

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ABSTRACT

In the past two years, 25 states have enacted executive orders and legislation to reduce unnecessary degree requirements for public sector jobs, signaling a shift toward skill-based hiring. This paper examines the impact of these policy commitments on public perceptions, media coverage, and job posting practices in the time following their adoption. Our analysis reveals significant increases in public awareness of skill-based hiring concepts, such as the 'paper ceiling' (i.e., bachelor's degree analog of the glass ceiling), and a notable decline in bachelor's degree requirements in state government job postings. We estimate that degree requirements dropped by 2.5 percentage points for each additional year of policy exposure in states with commitments. These findings suggest that state policy commitments have expanded access to government jobs for workers skilled through alternative routes (STARs) other than the bachelor's degree in keeping with the intended goals of the policies to broaden the talent pool for public sector hiring.

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Introduction

In the United States, the federal government, state governments, and local governments play critical roles as “providers of social services and income supplements, producers of goods, managers of the economy, and investors of capital” (Cameron 1978). As forces shaping the labor market, governments are well recognized in their roles as policymakers, who design, fund, and implement labor market policy (Lee and Saez 2012), and conveners, who influence and engage businesses as they define the terms of debate and sway both public attention and opinion (Albareda, Lozano, and Ysa 2007; Eldridge, Hawkins, and Mitra-Majumdar 2019).

In addition, one of the most direct and influential roles that governments play in the economy is as employers (Allegretto, Brown, and Curchin 2023; Durden and Schwarz-Miller 1982; Rainey, Backoff, and Levine 1976; Wolf and Amirkhanyan 2010). Over 15 percent of the U.S. labor force works in the public sector; as of 2022, 4.6 million workers were employed by the federal government, 6.1 million people by state governments, and 11.5 million by local governments.¹ The federal government is the single largest employer in the United States with workers spread across numerous agencies.² As a result, government policies and practices pertaining to the talent management of government employees directly influence economic mobility in the labor market. Historically, the government has used its role as a major employer to provide increased economic opportunities for members of historically disadvantaged groups, notably women and Black workers (Aizer et al. 2020; Laird 2017; Miller 2017; Zipp 1994).³

In the U.S. public sector, job requirements and pay scales that focus on bachelor’s degree attainment often inhibit economic mobility for workers who may have relevant experience but

¹ Authors’ analysis of the 2022 1-year American Community Survey accessed via IPUMS.

² While the true size of the federal government is difficult to estimate, this value is a lower bound and excludes 1.3 million active-duty military personnel and roughly 5 million contract and grant employees (Light 2017).

³ A notable and costly exception is President Woodrow Wilson’s resegregation of the civil service. See (Aneja and Xu 2022)

not the bachelor's degree. In line with a growing body of research (Blair, Debroy, and Heck 2021; Jardina et al. 2023; Boyer and Griffith 2023; Berger et al. 2024; Peterson, Douglas, and Van Noy 2024; Robins 2024), we refer to workers who are active in the labor force, have a high school diploma or equivalent, and have developed their skills through routes other than a bachelor's degree as STARS because they are skilled through alternative routes. The STARS nomenclature adopts an asset-based rhetoric that highlights the skills that they do possess rather than referring to them as "unskilled" which is common in the economic literature (Baldrige 2014).

There is no state in the nation in which STARS are proportionately represented in state hiring relative to their share of the state labor pool, leading to a national deficit of nearly one million STARS in state public sector employment relative to their share in the population.⁴ The underrepresentation of STARS in state government is at odds with the theory of bureaucratic representation which is built on the idea that a government workforce reflects the demographic composition of the public that they serve, in part as an indicator of equality of access and opportunity and in part as a way of incorporating heterogeneous preferences in bureaucratic decision making (Bradbury and Kellough 2011; Riccucci and Saidel 1997). The under-representation of STARS in the public sector is further surprising in light of the hiring and retention challenges that the public sector is facing amidst an unprecedented number of unfilled roles (Lewis and Cho 2010; Liss-Levinson 2023; Maciag and Rosewicz 2021). State governments are posting more roles and yet receiving fewer applications per role (Simon and Boerner 2024). For example, from 2016 to 2022, the number of applications per job in the public

⁴ Authors' estimate from the 2022 1-year American Community Survey, accessed via IPUMS. For each state, we calculate the share of the labor force who are STARS and the share of the state government workforce who are STARS. We then calculate the difference between current STAR employment in state government and the counterfactual in which the share of STARS in state government is equal to the share of STARS in the workforce.

sector decreased by 74 percent with 50 percent of jobs receiving 10 applicants or fewer (NEOGOV 2022).

In an effort to develop more robust and representative talent pipelines, 25 states – beginning with Maryland in spring 2022 – have announced intentions, whether via executive action or legislation, to remove unnecessary degree requirements from state government job postings. Qualitative interviews suggest this action is motivated by their commitment to equitable access to state employment given the impact of research findings highlighting the skills of workers who are STARS (Ahmed and Blair 2020; Blair et al. 2020; Blair, Debroy, and Heck 2021; Jardina et al. 2023). An estimate of the impact of these commitments suggests the potential to reduce the deficit in STAR representation in state government employment by more than half by opening opportunities for more than 540,000 STARS who have been screened out from opportunities in the public sector.⁵

Although there is clear momentum among government leaders at the state level to make commitments to remove unnecessary educational requirements and adopt explicitly skills-based alternatives, there has been limited measurement of the impact of these state commitments to-date or their potential for future impact. Where have these policy initiatives had an impact on state government job postings and what types of occupations have seen the greatest shifts? What frictions exist between announcement and implementation?

We seek to answer those questions. We proceed as follows. First, we review prior work on the ways that degrees, credentials, and experience have operated as labor market signals of worker skill and potential, along with emerging evidence that more direct measures of worker skill uncover an overlooked and skilled population of workers. Second, we explore the practical

⁵ This estimate is based on the same methodology described in Footnote 4, but is limited to the 25 states who have announced intentions, whether via executive action or legislation, to remove unnecessary degree requirements from state government job posting as of November 1, 2024.

implications of the shifting landscape of skills-based talent management in the public sector, namely in terms of employer awareness and accompanying behavior shifts. Using data from both a multi-wave survey on employer beliefs and behaviors, and job postings data from the past decade, we measure the preliminary outcomes of these state-based efforts. In particular, we adopt a linear probability model to assess the probability that a given job posting includes a bachelor's degree requirement, controlling for time trends and state- and occupation-level fixed effects. Third, we present the findings from a series of structured interviews of state leaders responsible for implementing the adoption of skills-based practices in one state who was among the early movers in the shift toward skills-based hiring: the State of Colorado. We explore their goals, rationales, commitments and actions. This qualitative case study illustrates the process by which organizations, particularly large and decentralized public sector organizations, can move from increased awareness of overlooked sources of skilled talent to systematic process and behavior change which can build a more robust and representative public workforce. Finally, we discuss the implications of our quantitative and qualitative findings for public and private employers as well as for STARS.

Signaling Skill in the Labor Market

Past work illuminates the challenges of signaling skill in the labor market, and the subsequent consequences. Information deficiencies about skills – that is, both the skills of workers and the skills necessary to complete the tasks associated with any given job – negatively affect labor market outcomes for both employers and workers (Carranza et al. 2022). Employers express difficulty in finding workers with the right set of skills to fill in-demand roles, both because they struggle to articulate their own skill needs and because they have difficulty identifying workers

with the skills to meet those needs (Burrows et al. 2014). Conversely, workers face difficulty in recognizing and credibly signaling the overlap between their skills and the skills employers seek. As employers navigate a complex and expensive matching process with incomplete information about workers' skills, potential, and likelihood of accepting a job offer, employers often rely on job market signals, like whether a job candidate has a bachelor's degree (Bartik and Stuart 2022; Spence 1973).

In the last forty years, there have been marked increases in the share of college-educated workers in the U.S. labor force and the economic returns for such workers (Autor, Goldin, and Katz 2020; Katz and Murphy 1992). As a result of this shift, degrees have increasingly been used as a predominant indicator of skill in the workplace and created difficulties for workers without a bachelor's degree to signal their work-relevant skills to potential employers (Autor 2014). This shift is marked by significant degree inflation in the labor market, in which roles previously accessible to individuals without a bachelor's degree now include the degree as a requirement to fill open roles (Fuller and Raman 2017). Together, these trends represent a fundamental shift in employer demand toward college-educated workers that has thus far been insensitive to labor market tightening (Blair and Deming 2020). As employer demand for workers with bachelor's degrees outpaced the supply of this type of worker, a common narrative coalesced around a so-called skills shortage or skills gap in the American labor force (Cappelli 2015; Carnevale, Smith, and Strohl 2010).

Central to this argument is the assumption that any job currently held by college graduates requires skills which can only be developed through the completion of a bachelor's degree (Harrington and Sum 2010). This assumption overlooks several contradictory facts about the U.S. labor market. First, workers with and without bachelor's degrees regularly work in the

same occupations, performing the same sets of tasks and developing similar competencies. For example, among the 60.2 million workers who are 25 years older and have a bachelor's degree or higher, 82 percent work in an occupation in which at least 10 percent of the other workers are STARS; 49 percent work in an occupation in which at least 30 percent are STARS.⁶

Secondly, defining or measuring skill in terms of college completion overlooks the myriad ways in which workers, both with and without bachelor's degrees, develop work relevant skills. For example, in addition to bachelor's degree programs, workers also build skills through alternative routes such as military service, apprenticeships, software bootcamps, two-year college programs, employer training, self-guided online learning platforms, and perhaps most notably, on-the-job experience. Additionally, this coarse measure of worker skill prioritizes and values the skill development that occurs during the roughly four years it takes a worker to complete a bachelor's degree more highly than the skills built during the twelve years of schooling beforehand and the thirty to forty years of on-the-job learning that occurs over the course of a worker's career (Blair et al. 2021).

This limited perspective often persists due to rational inattention, as both employers and workers, dealing with incomplete information, tend to rely on degrees as skill indicators in order to sidestep the initial investment required for assessing diverse, non-traditional workers (Laibson 1997; Sims 2003; Gabaix 2014; Matějka and McKay 2015; Caplin and Dean 2015; Li, Raymond, and Bergman 2020). Take, for instance, when hiring managers prioritize candidates with narrowly defined industry experience because widening the search to assess diverse skills and backgrounds requires considerable resources. Moreover, without additional indicators of a candidate's compatibility, a broader search may decrease both the precision of job matches and the likelihood of finding the ideal candidate.

⁶Authors' analysis of the 2022 1-Year American Community Survey accessed via IPUMS.

On the supply side, workers also encounter challenges in translating their current skills into other fields, with broader job search often diminishing match quality and reducing job offer success. For both employers and jobseekers, rational inattention has been shown to reinforce this cycle (Coate and Loury 1993; Arrow 1973). Additionally, the alternative use of employee referrals further amplifies the issue of incomplete information, thereby restricting STARs access to employment opportunities and leading to the exclusion of a potentially qualified segment of the workforce (Pallais 2014; Pallais and Sands 2016).

By convention, degrees were once tied to structured, standardized education pathways that conveyed specific competencies within the labor market (Stevens 2019). The scarcity of degrees made them a distinctive credential and were most commonly held by clergymen, lawyers and doctors. However, with the increased share of degree holders and rapidly changing skill needs due to evolving technologies and increasing access to information, the bachelor's degree is a much noisier indicator of skill (Fuller and Raman 2017). Moreover, as access to information increases, even traditional hiring practices that incorporate new technology such as artificial intelligence yet overlook specific skills needs, risk exacerbating market friction between employers and job seekers (Wiles and Horton 2024).

Skills-based hiring constitutes a significant shift in reducing informational asymmetries in the hiring process by providing firms with more direct and reliable indicators of candidates' capabilities (Hunter and Hunter 1984). In essence, this model shifts the focus from assumptions about skills based on degrees to verifiable skill sets, thereby improving information symmetry between employers and job seekers (Heller 2021). Research suggests that organizations adopting these practices achieve better quality matches and are more adaptive to changes in market conditions, with a 60% greater likelihood of improving innovation and efficiency (Deloitte

2022). This approach also allows firms to make more precise decisions, particularly in sectors where skills evolve rapidly and educational programs may lag behind industry needs (OECD 2024). Skills-based hiring helps to reduce biases that often arise from traditional methods, which disproportionately affect underrepresented groups (Binder, Poropat, and Berger 2021; Generation 2023). A study by Generation (2023) found that employers were equally likely to invite candidates with certifications to interviews as those with traditional degrees when presented with blind resumes, challenging the entrenched biases that favor formal qualifications over non-traditional education paths.

Timeline of State Commitments

Many state governments have made recent commitments to change their talent management approaches to center more directly on skills. In March 2022, Governor Hogan of Maryland signed an Administrative Order to eliminate bachelor's degree requirements for thousands of state jobs; a month later, Governor Polis of Colorado issued an Executive Order to develop statewide guidance and strategies to transition to skills-based hiring across the state workforce. Two weeks later, the Tennessee legislature mandated that state agencies cannot require a bachelor's degree as a condition to hire someone unless the required skills for the position can only be reasonably obtained in pursuit of the degree. In the early months of 2023, Governor Brian Kemp of Georgia signed legislation to require the state to make efforts to reduce the number of positions for which a bachelor's degree is required. In June 2024, Governor Ned Lamont of Connecticut signed a bill into law removing degree requirements following a year-long study of the state's hiring practices for state service.

The momentum continued: as of October 2024, 25 states have passed similar measures through executive order, administrative action, policy, or legislation to remove bachelor’s degree requirements from state jobs or reconsider hiring practices that have disadvantaged STARs.⁷ An additional seven states have not taken executive or legislative action, but are active participants in a National Governors Association’s “Skills in the States” Community of Practice (Winters et al. 2024). These commitments position state governments to widen their talent pool by up to 44% and improve how representative their state government workforces are of the communities they serve.⁸

Many of the 25 states that have recently enacted policies to encourage employment access to STARs in state government already had policies that prohibited preferring candidates based on education; for instance, Connecticut removed degree preferences in the 1980s. These recently enacted policies build from that: see Table A2 in the Appendix for a list of the ways in which states are changing organizational and individual behaviors to implement shifts toward skills-based talent policies and elevate a new population of talent frequently overlooked in the public sector (Zhavoronkova et al. 2022).

Change Management to shift awareness to behavior changes

For these state commitments to be successful, leaders within the state must successfully drive change management to improve awareness across levels of government, and then support shifts in behavior change. At the firm-level, these shifts require a number of facilitating factors to

⁷ See Appendix Table A1 for a complete list of states.

⁸ Authors’ estimate from the 2022 1-year American Community Survey accessed via IPUMS. We estimate the percentage by which state governments nationwide could widen their talent pool by calculating the percentage difference between STARs’ share of the national overall labor force and STARs’ share of the national state government labor force. We estimate the percentage by which state government workforces nationwide could improve their representation ratio by calculating the percentage difference between the hypothetical number of STARs that would be employed in state government if the share of STARs in state government was equivalent to the share of STARs in the overall labor force by the current total number of STARs employed in state government.

cultivate widespread buy-in, adoption, and institutionalization, with individuals playing a foundational role. Particularly within the public sector, public leaders and managers play a critical role in affecting change by communicating and building support among employees, interacting with internal and external stakeholders, and guiding consistent behaviors (Fernandez and Rainey 2006; Van der Voet et al. 2016). Yet, these change management strategies prove successful in the past: in the last century, there has been a foundational shift in labor force participation across industries and occupations, notably for women (Bilimoria, Joy, and Liang 2008; Fernandez 2013) and Black workers (Aizer et al. 2020).

However, successful top-down organizational change requires more than communicated awareness and intent. While a shared understanding of a problem and proposed solution is critical to behavior change (Bauman et al. 2008; Craig, Bauman, and Reger-Nash 2010), intent toward a behavior change does not always lead to the desired outcome due to immediate conflicts between choices (Duckworth and Gross 2020). For example, when resources are scarce or incentives are conflicting, change leads to interpersonal stress, weak implementation, and possible neglect of core duties. As a result, embedded and institutionalized change most often leads to effective organizational change because individuals must receive both persistent incentives and support to follow through (Fernandez and Rainey 2006).

Organizational change in the public sector has additional layers of complexity, in part because the public sector does its work in public. As a result, bureaucratic decision making is often shaped by a broader set of stakeholders, incentives, and constraints (Rainey 1997; stakeholders; Pollitt and Bouckaert 2004; Caldwell 2006; Perrot 2009).

Data and Methods

We use several datasets and methods to understand the impact of these public sector commitments. Below, we describe both the data and methods we deploy.

To understand historical trends in the educational composition of the public sector, we use the 1980 and 2000 Decennial Census and the 2022 1-Year American Community Survey, accessed via IPUMS. In addition, we use the 2022 1-Year American Community Survey to estimate national median wages for each occupation under the OCC2010 classification and assign occupations to wage groups (low-, middle-, upper-, or high-wage).⁹

In order to assess public awareness about STARS and skills-based hiring, we conducted a text analysis of newspapers and magazines that reference “skills-based-hiring” and the removal of degree requirements from January 2022 through July 2024.¹⁰ Articles were quantified per fiscal quarter, on a rolling basis, with a rolling window of two.

In 2022, the Ad Council and Opportunity@Work released a series of Public Service Announcements (PSA) as part of an awareness campaign titled “Tear the Paper Ceiling.” This PSA was a multi-media creative campaign directed to both employers and STARS. In order to track shifts in awareness, attitudes, perceptions, and behavior in response to the ad campaign, the Ad Council, in partnership with Opportunity@Work and C+R Research, surveyed a nationally representative population across the United States including a total of 1,802 employers and 7,218

⁹ We limit our estimates of the total number of workers (and STARS) per occupation and the national median wages to workers who are age 25 and older, noninstitutionalized, active in the labor force (employed or unemployed but seeking work), and not working in military occupations. We define wage groups relative to the national median such that low wage occupations pay less than two-thirds of the national median, middle wage occupations pay between two-thirds and four-thirds of the national median, upper wage occupations pay between four-thirds and two times the national median, and high wage occupations pay more than two times the national median.

¹⁰ News articles were accessed via ProQuest and were limited to those published in the United States, includes those published in-print or online, and included at least one of the following terms in our search: "skills-based hiring" OR "skills based hiring" OR "degree requirement" OR "remove degree" OR "paper ceiling" OR "skills-first" OR "skill-first" OR "skill first" OR "skill based" OR "skills-based" OR "degree reset" OR “degree screen” OR “skills gap” OR “credentialism.” Each article was manually verified for relevance; duplicate articles were removed.

STARs between September 2022 and June 2024. Respondents were recruited through a variety of methods: outreach through loyalty programs with various companies, advertisements on digital websites and applications, affiliate networks, and/or respondents seeking out survey opportunities and registering directly through their respondent-facing website.

Employers were identified as adults aged 24 - 65 who were employed full time, completed at least trade school or vocational training, participated in hiring decisions, regularly hired employees, and were employed across a range of occupations. STARs were identified as adults aged 24 - 70 who were employed full-time, part-time, self-employed, or unemployed and looking for a job. Additionally, STARs were classified as workers who held a high school diploma but did not have a bachelor's degree and were not currently enrolled or planning to enroll in a bachelor's degree program or graduate program. Employer and STAR data was aggregated per wave and quantified across all survey responses for awareness and behavior metrics.

To determine significant changes across survey wave responses, the percent of survey respondents selecting each response was compared statistically. Waves 2-8 for STARs and 2-4 for employers were compared to Wave 1 where available. In some cases, the survey question was not asked in Wave 1 (N/A) and Wave 2 was used as the baseline. For each wave, confidence intervals were calculated using the percent of respondents and margin of error. Overlapping confidence intervals indicated no statistically significant difference, and no further testing was performed. For non-overlapping confidence intervals, significance was tested using a two sample proportions z-test.

We use the Lightcast Job Postings data to assess trends in the use of degree requirements by state public-sector employers across state, occupation, and month from January 2015 through

October 2024. We define postings as being open to STARs if the minimum education requirement listed in the job description is high school/GED, associate’s degree, or there is no minimum education requirement listed.¹¹ In this time period, we observe more than 2.4 million job postings by state governments; more than 1.4 million of those job postings were in states who passed a policy to remove unnecessary degree requirements.

We adopt a linear probability model such that Y_{isto} represents the probability that a job posting i in state s , year-month t , and occupation o includes a degree requirement. The dosage variable D_{st} measures the number of months since the policy was implemented, converted into years (increments of twelfths). The regression model is specified as:

$$Y_{isto} = \beta_0 + \beta_1 D_{st} + \gamma_t + \alpha_s + \delta_o + \epsilon_{isto}$$

where D_{st} is a continuous variable representing the policy dosage in years, increasing by increments of $\frac{1}{12}$ for each month since the policy was implemented, γ_t represents year fixed effects, α_s represents state fixed effects, and δ_o represents occupation fixed effects. For models with state-by-occupation fixed effects, α_s and δ_o are replaced by α_{so} , which accounts for heterogeneity within state-occupation combinations. β_1 is the coefficient of interest and captures the effect of an additional year of policy exposure (or dosage) on the likelihood that a job posting requires a degree. To estimate our linear probability model, we limit our sample to the 25 states that have made a commitment as of November 2024. The identifying assumption in our setting is that the timing that a state makes a commitment is random. Therefore we can estimate the impact

¹¹ We also analyzed job postings data accessed via Talent Neuron for state employers in Alaska, Colorado, Maryland, Pennsylvania, and Utah and compared estimates against those derived from the Lightcast Job Postings data. We found similar trends in the data, but for this set of employers, we generally found lower numbers of total postings and postings open to STARs.

of making a commitment by leveraging the rollout of the executive orders and legislative changes across adopting states.

Finally, we conducted a series of structured interviews of several state leaders in both the Department of Personnel and Administration and the Department of Labor and Employment in order to better understand the implementation process of the governor’s executive order in the State of Colorado.

Results

Below, we share results that measure how policy commitments impact state behavior. We begin by sharing descriptive tables to illustrate the workforce composition of the public sector relative to the private sector across occupations. We also present data on the nature of state commitments, and insights from media mentions and increased public awareness of skills, hiring behaviors and the “paper ceiling.” We present an analysis of the shifts in job posting behavior of state governments relative to the private sector to demonstrate that policy commitments have impacted state hiring behavior. And finally, we share a case study analysis from the State of Colorado to illustrate the change management efforts underway to operationalize the state commitments.

Part I. State Governments Have a Higher Percentage of BA Workers than the Private Sector

Figure 1 shows the workforce composition across states in both the private sector and state government in 1980 and 2022. In order to make more direct comparisons, the private sector workforce for each state was reweighted to represent the occupational distribution of the state government in each year. First, there is a clear time trend across states and employer types: workers with bachelor’s degrees make up a larger proportion of the workforce in 2022 than in

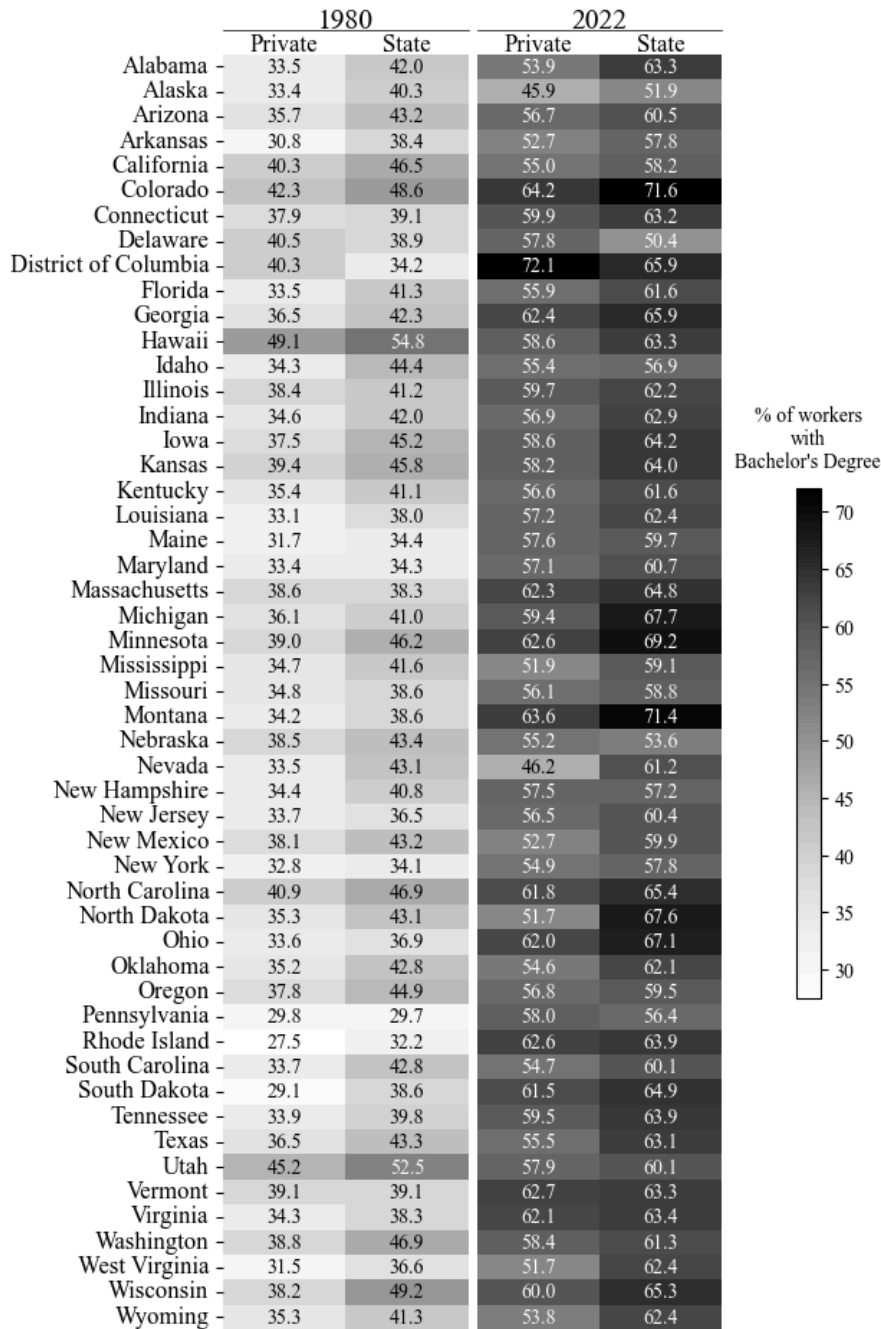


Figure 1. Representation of Workers with a Bachelor’s Degree in the Public and Private Sector, 1980 and 2022. Heat map displaying the percent of workers with bachelor’s degrees in state and private sector employment. Data are from the 1980 Decennial Censuses and the 2022 1-year American Community Survey accessed via IPUMS. The sample is limited to workers who are 25 years and older and active in the labor force. Darker shading indicates a higher percentage of workers with bachelor’s degrees. The share of workers in a state’s private sector workforce is reweighted to match the occupational distribution of the state government in order to allow for more direct comparisons.

1980. This is not surprising given the known increase in the proportion of Americans who are going to and completing four-year degrees. Second, while there is some variation in the share of workers with bachelor's degrees across states, state governments consistently employ a larger percentage of workers with bachelor's degrees than in the private sector, even after controlling for occupational composition. North Dakota and Nevada, for instance, have the largest difference, 15 percentage points, between the share of bachelor's degree holders in the state and private sectors in 2022. By controlling for occupational composition, this pattern suggests that the higher share of workers with a bachelor's degree in state government has less to do with differences in the types of jobs available in the private and public sectors. Instead, it likely has more to do with either worker preference for public sector work or state government preference for workers with bachelor's degrees.

Part II. State Commitments and Shifting Awareness of Skills Developed Through Alternative Routes

To understand the temporal shift in the removal of degree requirements across states, we reviewed legislation and executive orders enacted from each state from 2022 through June 2024. These states and the timing of their policy commitments are shown in Figure 2. Maryland, Colorado, Tennessee, and Utah were the first four states to lead the movement initiative by making official their intentions to totally remove degree requirements from state government job postings in 2022.

During 2022 this time, these states began to review state jobs to determine where degree requirements could be omitted.¹² The following year, 15 additional states, including

¹² Opportunity@Work began working with the State of Maryland and the State of Massachusetts in 2022, as part of the first group of states to analyze data about job postings and remove degree requirements on state job postings.

Massachusetts, California, Georgia, Pennsylvania, and Ohio, enacted official state legislation or EOs to change hiring practices.

By November 2024, a total of 25 states passed legislation or EOs to remove unnecessary degree requirements. These efforts are distinctly non-partisan in nature: at the time of state commitment, 13 of the states were led by a Republican governor and 12 were led by Democratic governors. Across the affected states, these commitments have the potential to impact a workforce of over 97.1 million workers, including 48.3 million STARs.

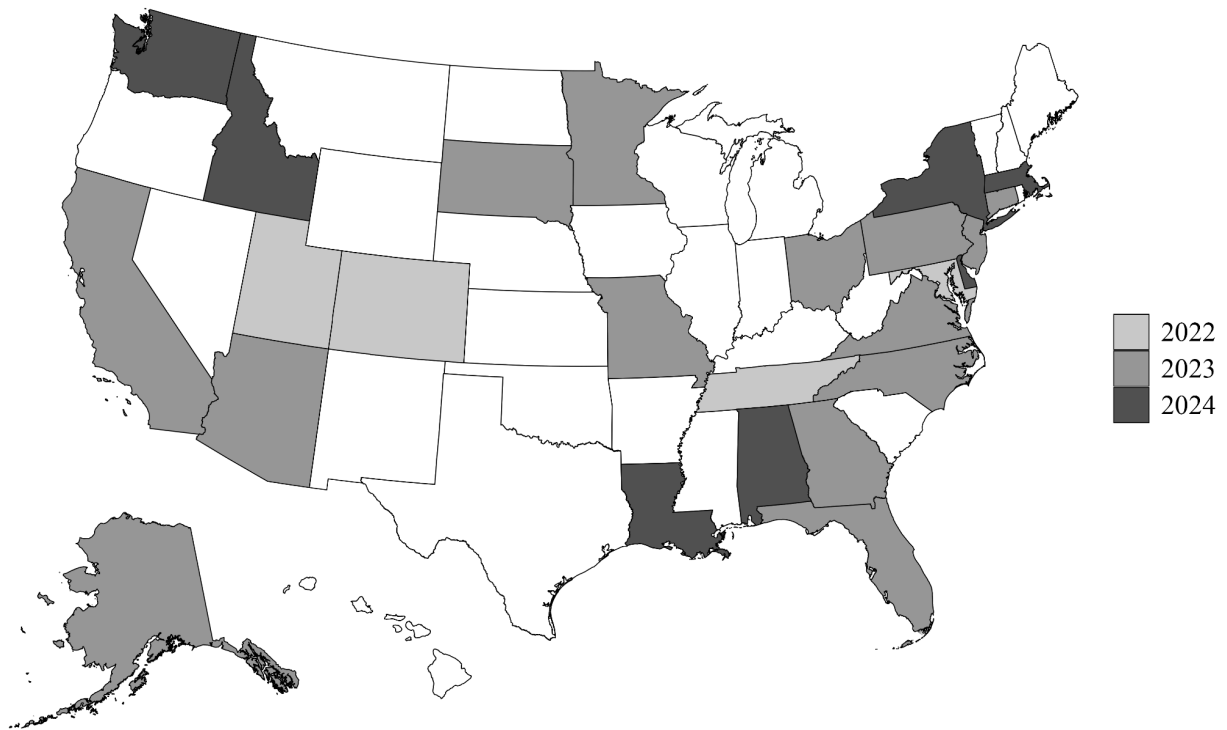


Figure 2. State Commitments to Remove Degree Requirements From Government Jobs. Map of the United States depicting the 25 states who have passed legislation or executive orders to remove degree requirements from job postings. Note: The state of Utah passed related legislation in 2021, but was not fully implemented until the governor passed an executive order in 2022. Additionally, the state of Michigan is not included, though the state took a partial action in 2023 to waive its requirement of a bachelor’s degree for many state jobs for veterans with at least two years of active federal service.

For each of the states that passed legislation or executive orders to remove degree requirements between 2022 and 2024, we reviewed some key characteristics of the policy change and include a summary of those findings in Table 1. Of the 25 commitment states, 56% enacted policy changes in 2023. Most states, 60%, committed through executive orders from governors, allowing for quick policy action without passing legislation. Regardless of the change type, 48%

Metric	Percentage of 25 states
Change type	<i>Executive/Administrative Orders: 60%</i>
	<i>Legislation: 40%</i>
Year passed or enacted	2022: 16%
	2023: 56%
	2024: 28%
Immediate removal of degree requirements	48%
Report and qualitative reviews	76%
Transition to skills-based hiring	64%
Budget allocation	16%
Member of National Governors Association's Skills in the States Community of Practice ¹³	56%
Task force	32%

Table 1. State Commitments to Remove Degree Requirements From Government Jobs. Note: The state of Utah is captured in this data under Executive/Administrative Orders and not under legislation. The related legislation passed in 2021 was not fully recognized until the governor passed an executive action in 2022. The state of Michigan is not included because the state took a partial action in 2023 to waive its requirement of a bachelor's degree for many state roles for workers with at least two years of military experience. Report and qualitative reviews were either required as a first step and/or required on a regular basis following the initial set of roles requiring degree removal.

¹³ See [here](#) for more information about the National Governors Association's Skills in the States Community of Practice.

of commitment states required the immediate removal of degree requirements from government jobs. Despite the fact that almost two-thirds of states expressed an intention to transition toward skills-based hiring, 32% developed a task force to support these policy changes and only 16% of states allocated funds for the work. States like Colorado provide an example of policy change with Governor support, backed by a budget, task force, and periodic review to ensure successful organization-wide change (see Table A2).

Figure 3 illustrates the growing awareness of skills-based hiring, as evidenced by a significant rise in media mentions over time. Between 2022 and 2024, overall quarterly mentions grew by 58% from 26 to 62. By 2024, there were a total of 486 individual articles mentioning skills-based hiring across both public and private sectors. Notably, the majority of media attention (63.6%) focused on the public sector, with the private sector accounting for the remaining 36.4%. Within the public sector, state-level mentions were predominant early in 2022 and increasing by 67% by 2024. Mentions concerning other public sector entities (federal and local) rapidly increased in frequency, with 174% more mentions during the same period.

In contrast, while the private sector also saw an increase in skill-based hiring media attention, this shift was more gradual compared to the momentum observed in the public sector. This highlights the importance of the public sector in driving this increase in awareness of skills-based hiring and leading talent management practices.

In Figure 4 we present the survey responses from STARs and employers to understand shifts in awareness metrics, and behavior change metrics. As detailed in the Data section, surveys were conducted in eight waves for STARs and four waves for employers, where independent groups were surveyed in each wave.

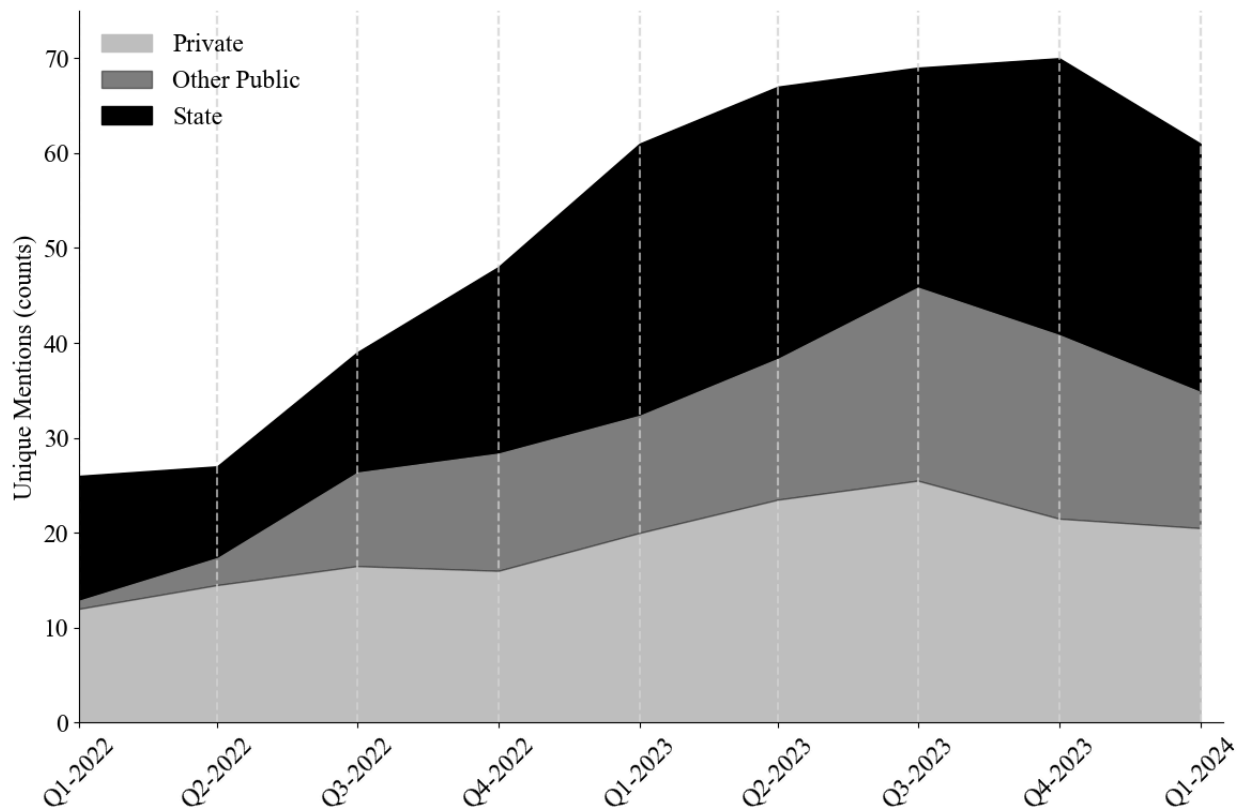


Figure 3. Media Mentions About Skills-Based Hiring By Sector, 2022 - 2024. Includes a total of 486 newspaper, magazine, and website articles on skills-based hiring from January 2022 - March 2024. Stacked area plot depicting the number of media mentions, y-axis, averaged quarterly, x-axis, on a rolling basis (rolling window = 2) and classified based on primary sector referenced in the article: private, state, or other public (federal and local). Since early 2022, there have been 52% more media mentions per quarter for the private sector, 67% more for the state sector, and 174% more for other public sectors.

To gauge awareness, respondents were provided with samples of “Tear the Paper Ceiling” PSAs and asked whether they had previously seen or heard these advertisements. Significantly more STARS across each wave recognized the PSAs when compared to wave one ($p < 0.01 - 0.001$). Employers also saw a significant increase in PSA recognition among the second and third waves of respondents ($p < 0.01 - 0.001$). This suggests that the PSAs targeted towards STARS successfully reached the target audience and captured respondent attention, and that employers were also increasing awareness between the first wave and those that followed.

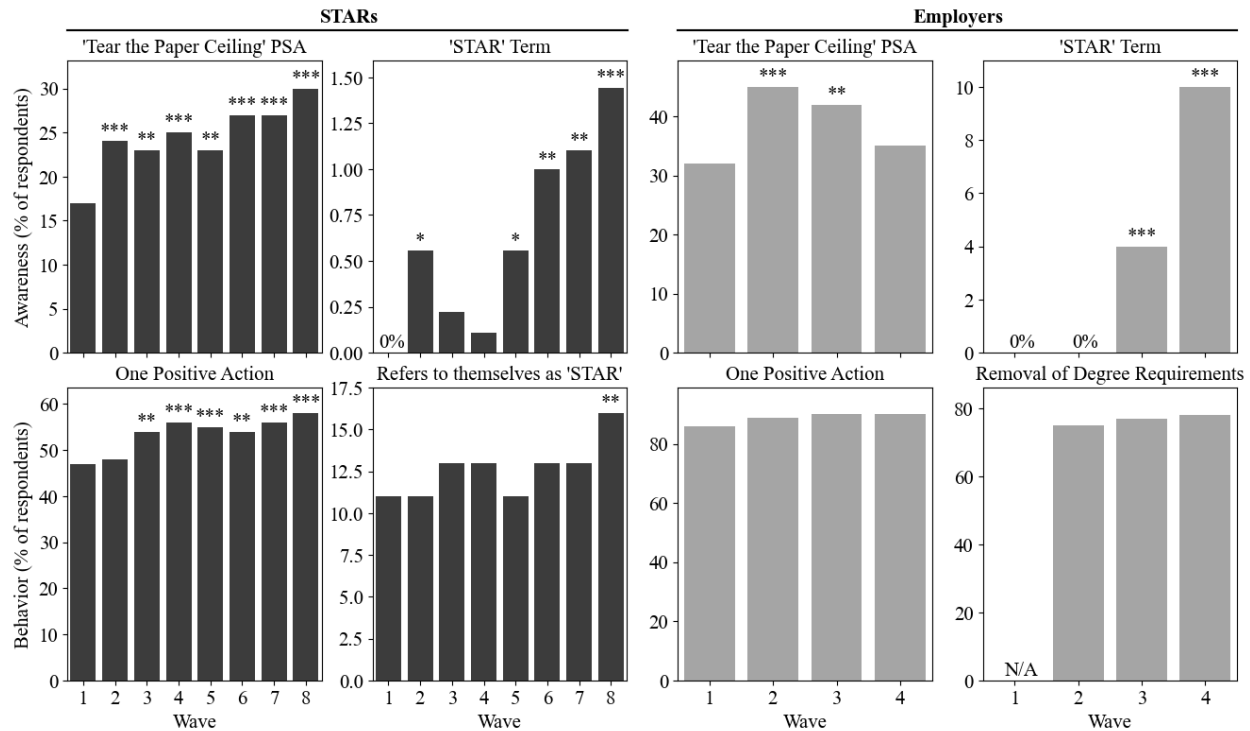


Figure 4. STAR and Employer Awareness and Behavior Shifts from 2022 - 2024. Data is provided by the Ad Council in partnership with Opportunity@Work and [C+R Research](#) who surveyed STARs and Employers between September 2022 and June 2024. Bar plots displaying the percentage of respondents, y-axis, reporting awareness and behavior shifts across independent survey waves, x-axis. Each panel represents a unique metric, with data shown for STARs (left) and Employers (right). For STARs n ranges from 900 to 909 with a margin of error between +/- 0 and 3.26; for employers, n ranges from 450 to 452 with a margin of error between +/- 0 and 4.59. Awareness metrics include recognition of the “Tear the Paper Ceiling” PSAs and use of the term “STAR” unaided. Behavior metrics include at least one positive action (Table A3 & A4), self-identification as a STAR, and taking steps to remove degree requirements. Significance is shown above each bar: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-sample proportion Z-test comparison to wave 1 or wave 2 where wave 1 was not available (N/A).

Next, we assessed shifts in skills-based hiring behaviors and sentiment by quantifying the net positive actions taken by survey respondents (Figure 4, panels five and seven). Positive actions include a range of behaviors described in Table A3 & A4. STAR respondents selecting at least one positive action increased significantly over the course of the campaign ($p < 0.01$) while employer respondents selecting at least one positive action remained stable. Similarly, STAR respondents who referred to themselves as a worker who is “Skilled Through Alternative

Routes” or as a “STAR” to employers, family, and/or friends significantly increased by wave eight (Figure 4, panel six). Employer behavior lagged that of STARs, as employers who had removed or begun to remove degree requirements hovered around 77% from wave two to wave four (Figure 3, panel eight).

Part III. Shifting Job Postings Behavior of State Governments Relative to the Private Sector

In Table 2, we report results measuring the impact of state policy exposure (in years) on the likelihood that a job posting lists a bachelor’s degree requirement. We refer to this exposure measure as the policy’s “dosage.” Panel A reports unweighted regressions, reflecting the composition of job postings in the raw data. Panel B presents results from regressions where job postings are reweighted to align with the occupation distribution of jobs within a state, offering a more representative picture of the labor market. All models include year fixed effects, and Columns (1) through (3) progressively add state fixed effects, state and occupation fixed effects, and state-by-occupation fixed effects.

The unweighted regressions in Panel A indicate that degree requirements decline by 2.5 to 3.1 percentage points for each additional year of policy exposure. These coefficients, which are statistically significant at the 5% level, increase in magnitude as more stringent fixed effects are added, which suggests that our results are robust. In Panel B, the reweighted regressions show even larger effects, with degree requirements declining by 4.67 to 5.1 percentage points per year of policy exposure. The results with state fixed effects and both state and occupation fixed effects are statistically significant at the 5% level, while the results from the model with state-by-occupation fixed effects are marginally significant ($p = 0.064$) but of a similar magnitude. Overall, the results across both panels suggest that state policies significantly reduce

	(1)	(2)	(3)
Panel A: Unweighted Regressions			
Dosage (in years)	-0.0251** (0.0119)	-0.0295** (0.0123)	-0.0310** (0.0131)
Observations	1,463,975	1,463,975	1,463,975
Panel B: Weighted Regressions			
Dosage (in years)	-0.0488** (0.0211)	-0.0502** (0.0238)	-0.0467* (0.0241)
Observations	1,407,075	1,407,075	1,407,075
State FX	✓	✓	
Occupation FX		✓	
State-by-Occupation FX			✓

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2. Impact of Policy Exposure on State Government Degree Requirements. All models include year fixed effects. The weights in the weighted regressions are based on state-occupational share in 2014. Data are from Lightcast Job Postings, 2015 - 2024 and 2014 1-year American Community Survey (ACS) accessed through IPUMS.

degree requirements in job postings over time. The larger effects observed in the weighted regressions shows that the unweighted results in Panel A provide a conservative estimate of the policy's impact. The large effects in the reweighted sample also highlight the importance of accounting for occupational distributions.

These reductions are likely more pronounced in jobs less frequently posted online and captured in the Lightcast data, such as those in smaller or more specialized sectors.

Consequently, any selection bias in job postings data—where more visible and formal postings

are overrepresented—likely understates the true impact of the state policies on degree requirements. These findings underscore the potential of such policies to reduce credential barriers and expand access to jobs for workers without traditional degrees.

In order to build a descriptive understanding of the occupation-level shifts represented in this data, Figure 5 shows the share of state government job postings which did not include a bachelor's degree requirement, and were thus open to STARs, in two time periods: the 12 months before a state passed legislation or an executive or administrative order and the 12 months following such a commitment. This figure is limited to the 18 states which had made a commitment prior to November 2023 such that job postings can be observed for 12 months before and after the commitment. Each point represents an occupation and is sized according to the total number of postings over the entire two year period. The dashed line has an intercept of zero and a slope of one and represents the relationship one would expect to see if there was no change across the two time periods. As a result, points that are above the dashed line represent occupations with an increased share of postings open to STARs in the 12 months following the state commitment while points below the line represent the inverse. The black line represents a linear regression through the observed data, weighted by total number of postings.

While many occupations require degrees on a similar share of postings in both time periods, on average, occupations in these states have fewer degree requirements in the 12 months following a state commitment than they did in the 12 months preceding. In addition, the slope (0.804) and intercept (0.166) of the regression line demonstrate that these shifts are most evident in occupations with a relatively small share of postings open to STARs in the period before state commitment.

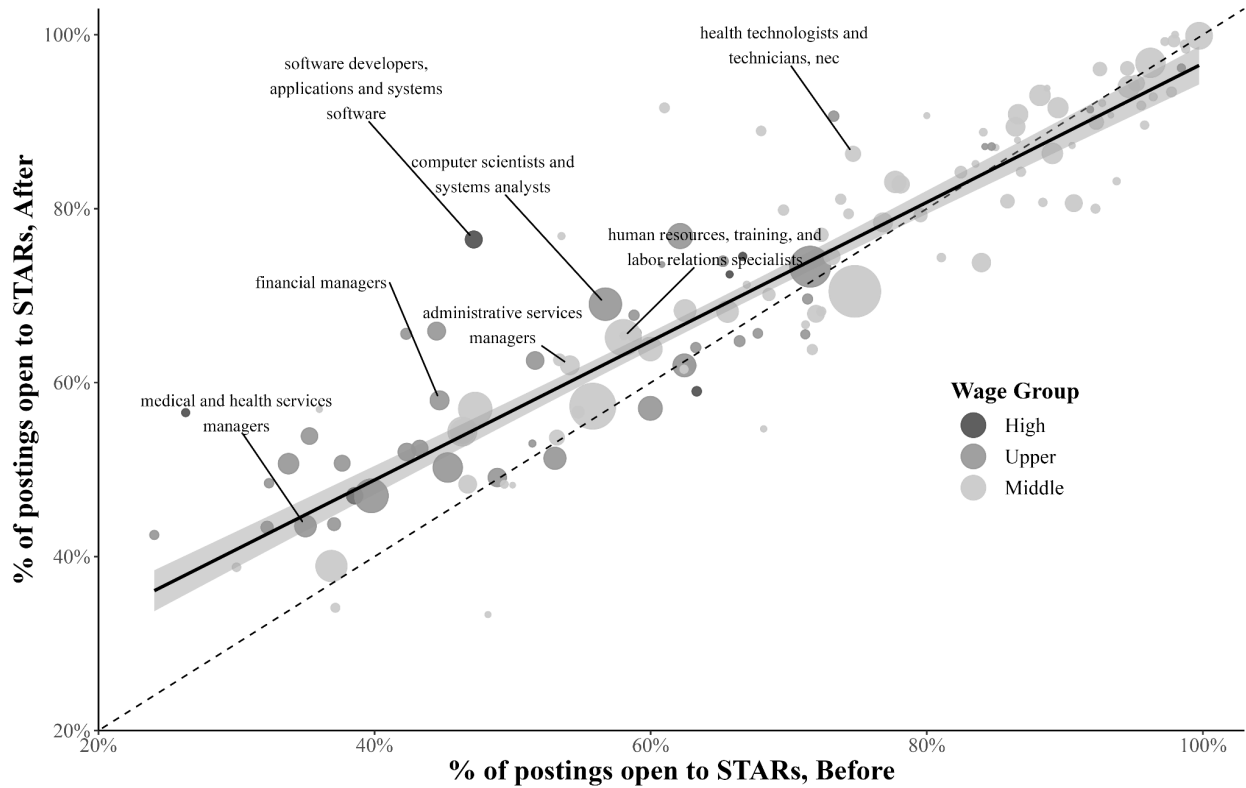


Figure 5. Shifts in Share of Public Sector Postings Open to STARs by Occupation, Before and After State Commitment. Sample limited to the following states which either issued an executive order or passed legislation before November 2023: Alaska, Arizona, California, Colorado, Connecticut, Florida, Georgia, Maryland, Minnesota, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, South Dakota, Tennessee, Utah, and Virginia. Occupations are limited to those with at least 10 percent workers with a bachelor’s degree, at least 10 percent STARs, at least 50k total workers nationally, and which pay at least two-thirds of the national median hourly wage. Labeled occupations are included as examples. The dashed line has an intercept of 0 and slope of 1 and represents parity between the two time periods. The black line represents a linear regression weighted by total number of postings; it has an intercept of 0.169 and a slope of 0.798. Data are from Lightcast Job Postings, 2021 - 2024 and the 2022 1-year ACS, accessed via IPUMS.

In comparison, Figure 6 explores the same relationship in states that have not passed legislation, an executive order, or an administrative order to date. Given that the time periods of interest are defined relative to a state commitment, for these states, we generate counterfactual 12 month periods relative to the median date of enactment (May 2023). While there is some

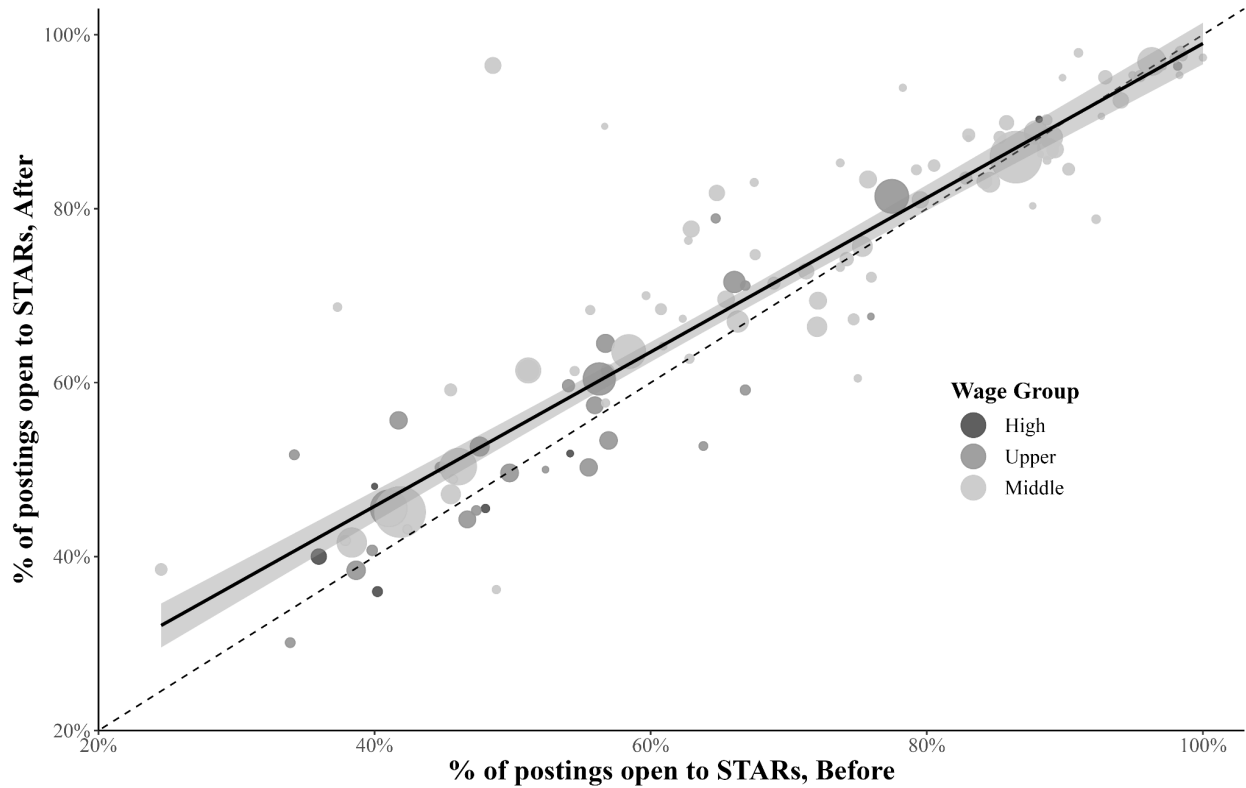


Figure 6. Comparative Shifts in Share of Public Sector Postings Open to STARs by Occupation in States with No State Commitment. Sample limited to the following states which had not issued an executive order or passed legislation before November 2023: Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, Texas, Vermont, West Virginia, Wisconsin, and Wyoming. The median date of policy enactment (May 2023) is used to generate the counterfactual time periods for these states that did not pass a policy. Occupations are limited to those with at least 15 percent workers with a bachelor’s degree, at least 15 percent STARs, at least 50k total workers nationally, and which pay at least two-thirds of the national median hourly wage. The dashed line has an intercept of 0 and slope of 1 and represents parity between the two time periods. The black line represents a linear regression weighted by total number of postings; it has an intercept of 0.103 and a slope of 0.887. Data are from Lightcast Job Postings, 2021 - 2024 and the 2022 1-year ACS, accessed via IPUMS.

evidence that, even in states that have yet to make a formal policy commitment, postings were somewhat less likely to include degree requirements in the second time period, perhaps due to national time trends, this shift is notably weaker. In this case, the regression line has a steeper slope (0.877) and smaller intercept (0.109) that are notably closer to the dashed line which

represents no change.¹⁴

Collectively, these results provide evidence that the policy commitments taken by states to remove degree requirements are having an impact on state job posting behavior, even after controlling for time trends and state- and occupation-level variation. As a final exercise, we examine occupation-level shifts to develop a better understanding of what types of jobs have fewer degree requirements in the post-commitment period. In order to focus attention on the roles in which shifts are likely to have the largest substantive impact, we limit our attention to occupations with at least 50k total workers nationally and in which both STARs and workers with a bachelor's degree are currently represented.¹⁵

In Table 3, we highlight the ten occupations with the largest increase in the percentage of openings open to STARs. These occupations are overwhelmingly good-paying roles: nine out of the ten occupations have median wages that pay above the national median. They are also not an anomaly in the data. Among all occupations, 48.1 percent of jobs posted in the 12 months following a state's policy commitment were in occupations that had a sizable reduction in the share of postings with bachelor's degree requirements, 38.5 percent were in occupations for which the share stayed relatively constant, and 13.4 percent were in occupations for which there were a higher share of postings with a bachelor's degree requirement.¹⁶

Collectively across the eighteen states included in our sample, there were 91,914 job openings in the 12 months following state policy commitment in occupations which pay at least

¹⁴ The coefficients from a linear regression of the pre-period share of postings open to STARs on the post-period share open to STARs interacted with an indicator variable for whether a state is treated indicate that the difference between both the slopes and intercepts to be statistically significant.

¹⁵ We include occupations for which at least 10% of workers are STARs and at least 10% of workers have a bachelor's degree. This limits our sample to occupations to which both groups have some historical access and excludes roles for which additional postsecondary education is typically needed.

¹⁶ We define occupations as having no change in the share of postings with degree requirements if the percentage point change is between 3 and -3. If we exclude this category, 76% of postings were in occupations which had a smaller percentage of openings with bachelor's degree requirements (or greater percentage open to STARs).

Occupation	National Median Hourly Wages	States that made a commitment to remove degree requirements by July 2023		
		% of State Jobs Open to STARs, Before	% of State Jobs Open to STARs, After	Percentage Point Change
Software Developers, Applications & Systems Software	\$56.73	47.2%	76.5%	+29.3
Other Business Operations & Management Specialists	\$33.65	42.3%	65.6%	+23.3
General & Operations Managers	\$33.17	44.5%	65.9%	+21.4
Mathematical Science Occupations, Other	\$40.87	35.3%	53.9%	+18.6
Managers in Marketing, Advertising, & PR	\$42.31	33.8%	50.7%	+16.9
Management Analysts	\$43.75	62.1%	76.9%	+14.7
Financial Managers	\$38.78	44.7%	58.0%	+13.3
Financial Analysts	\$41.35	37.7%	50.7%	+13.1
Computer Scientists & Systems Analysts	\$38.46	56.7%	69.0%	+12.3
Health Technologists & Technicians	\$21.90	74.7%	86.3%	+11.6

Table 3. Example Occupations with Sizable Shifts in Posting Behavior, Before and After State Commitments. Sample limited to the following states which either issued an executive order or passed legislation before November 2023: Alaska, Arizona, California, Colorado, Connecticut, Florida, Georgia, Maryland, Minnesota, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, South Dakota, Tennessee, Utah, and Virginia. Occupations are limited to those with at least 10 percent workers with a bachelor’s degree, at least 10 percent STARs, at least 50k total workers nationally, and which pay at least two-thirds of the national median hourly wage. In order to better identify shifts in proportions, occupations are limited to those with at least 250 unique postings across these 15 states in both time periods. Data are from Lightcast Job Postings, 2021 - 2024 and the 2022 1-year ACS, IPUMS.

two-thirds of the national median and in which both STARs and workers with bachelor’s degrees have historically been represented. Prior to state commitment, we would expect about 63.3 percent of these job postings to be open to STARs. Instead, we observe that 67.6 percent of these postings are open to STARs, a 3.3 percentage point increase. This shift represents an additional

3,950 job postings – or 7% more– middle- and high-wage state jobs open to workers without four-year degrees as a result of state policy commitment.

Part IV: Case Study of the State of Colorado Actions

Given the nature of the observed shift in degree requirement behavior, gradual and additive rather than a singular discontinuity, we conducted a series of structured interviews with government leaders in the state of Colorado in order to better understand the goals, rationale, commitments and actions taken by the state to implement skills-based hiring on a state, agency, and individual level.¹⁷

With 1.3 million STARS in the workforce of the state of Colorado and 28,000 state public sector jobs, the state recognized skills-based talent strategies could enable it to meet its hiring goals in a competitive market, prepare for the expected talent challenges of tomorrow, and build a workforce that reflects the community of citizens it serves. As a result, it was amongst the first states to commit to skills-based practices, second among the 25 state commitments to-date.

This commitment manifested in a few executive orders: First, on April 14, 2022 Colorado issued [Executive Order 2022-15](#), declaring a transition to a skills-based hiring model. [EO 2022-27](#) was signed later in the same year to expand the number of apprenticeships offered by state agencies and departments. Then, [EO 2023-016](#) was signed the following year, which replaced and superseded EO 2022-27, and expanded the commitment to include other models of work-based learning. As one of the first states to shift to a talent management strategy towards skills-based hiring, Colorado provides a real-world case example of a public sector organization

¹⁷ We conducted structured interviews about the state’s implementation tactics with Melissa Walker, Director of Workforce Solutions, Colorado Department of Personnel and Administration; Jennifer Cecere, Work-based Learning Implementation Specialist (formerly, the Skills-based Hiring Implementation Specialist), Colorado Department of Personnel and Administration; and Katherine Keegan, Director of the Office of the Future of Work, Colorado Department of Labor and Employment.

moving from awareness to observable behavior shifts in talent management in order to achieve their stated objectives.

Colorado's goals for a skills-based talent system

The state of Colorado began experimenting with skills-based talent practices in 2019. The state sought to meet hiring goals in an increasingly competitive labor market, to build a state workforce that better reflects the demographics of the state and also to meet future talent challenges. Colorado sees skills-based practices as a means to open entry for a broader set of qualified workers, namely STARS, into state jobs. “We are creating opportunities for everyone, not just those with education. We want to draw on all kinds of experiences. One of our big agenda items over the last few years has been making our workforce really reflect our community and this has included creating pipelines and avenues for employment where, in the past, segments of our workforce have faced hurdles. Now we have an opportunity to recruit this talent and retain them,” says Melissa Walker, Director of Workforce Solutions, Colorado Department of Personnel and Administration.

By removing restrictions based on education, Colorado also seeks to meet the increased demand for workers in the public sector in the last few years due to expanded government mandates. The State of Colorado is aware that the labor market will not become less competitive any time soon, with a large number of public sector retirements projected in the next ten years and a growing number of jobs in the private sector. “It is a common understanding that the number of job openings outweigh the number of workers in Colorado,” remarks Katherine Keegan, Director of the Office of the Future of Work, Colorado Department of Labor and Employment.

Further, the adoption of systematic skills-based talent practices prepares Colorado to regularly revise job descriptions, as well as hiring and advancement practices, to reflect the constant reskilling and upskilling of the modern economy. “We want to be responsive to any change in the economy or any new skills that might be emerging. For example, technology is changing all the time and is changing everyone's job. If we rely on old hiring practices, we'll fall behind very quickly. We want to make building job descriptions much more iterative to reflect the actual needs of that role at that moment,” says Katherine Keegan.

The state adopted a holistic approach to organizational change

The state's experimentation prior to Governor Jared Polis' first Executive Order on skills-based talent practices also helped the state prepare for the inherent challenges that come with organizational change and the revision of common talent management practices. Understanding that system change requires a top-to-bottom commitment, the State took a multi-pronged approach at the state, agency and individual levels to navigate the layers of change necessary. At the State level, Colorado set a collective vision and the incentive structure for change directed through the three EOs. At the agency level, agencies were directed to take action in their domains and customize their plans to achieve the State's targets. At the individual level, human resource staff and hiring managers were trained and incentivized to implement change.

Leaders established a state-wide vision

Government leaders in Colorado developed a plan with interim milestones to drive accountability and incentivize action throughout the state's employees. The signed executive orders formalized the state's commitment to skills-based hiring, and to further measure success

and hold state employees accountable, the orders detail specific targets including annual milestones for the removal of degree requirements. Additionally, the state set agency goals for the creation of apprenticeship programs. The goals were supported with a budget of \$700K for staffing and other costs related to the transition to skills-based hiring.

Agencies participated actively in organizational transition

Colorado has a decentralized human resources system that empowers state agencies and departments to operate independently and determine their hiring procedures and standards. The state's Department of Personnel Administration (DPA) recognized that in this environment, top down implementation was unlikely to be successful. Instead, they gave agencies the flexibility to develop their own implementation plans for skill-based practices while building buy-in for these efforts.

Before they took their efforts statewide, DPA tested new practices in their own hiring efforts to understand likely challenges. They tried different strategies and adapted them as they learned their own lessons about skills-based hiring. This gave them the foundation and credibility to advise other agencies. They began to develop resources and guidance to support agencies in their implementation efforts.

To build buy-in, they met with human resource leaders in every agency to communicate the state-wide goals and the rationale for skills-based hiring. They also highlighted success stories from work-based learning programs to demonstrate that these practices are feasible and yield positive results. When agencies develop apprenticeships, they identify skills, select participants, and train workers consistent with a skills-based approach. "We consistently get our best and most diverse workers, in terms of background and experience, from apprenticeships. If

we can just get agencies to experience for themselves the goodness that comes from skills-based hiring by posting a single opening and seeing the kinds of candidates who apply, it will make them want to do it again,” shared Katherine Keegan, Director of the Future of Work, Colorado Department of Labor and Employment.

Individuals received training and tools to facilitate behavior change

Ultimately, it is the individual HR professionals and hiring managers who must adopt new behaviors to change the way workers are recruited, hired, and developed. With this in mind, the state funded training for their HR professionals and supervisors on skill identification, writing job descriptions, and behavioral interviewing. HR staff are available to coach hiring managers through the process. “Some hiring managers love degrees because it’s a simple check the box requirement. When we asked managers to think in terms of skills, they gravitated towards stating titles, creating another barrier for candidates. What we truly needed to do is clearly delineate skills. This was the drive behind our training,” stated Jennifer Cercere, Work-based Learning Implementation Specialist, Colorado Department of Personnel and Administration.

In addition to training and coaching, State agencies also introduced a new set of tools designed to facilitate behavior change. For example, a new job requisition form prompts hiring managers to consider skills first. To avoid subjectivity and create consistency, they use the O*NET as a skills taxonomy. To ensure the skills named are relevant and specific, the form asks hiring managers to articulate the minimum requirements for the role and cite several types of experiences that meet those requirements. For clarity, the new job description template includes language to explicitly state if degree is not required. As a final nudge, the form includes a checkbox to indicate that they considered removing degree requirements for the role.

Impact in Colorado so far

The state of Colorado is clear that they are early in this journey. “We are not yet where we want to be, but we are underway,” says Melissa Walker. The content of job postings has shifted as hiring managers have substituted degree requirements with indicators of experience, such as years in the field. As of July 2024, 48% of Colorado’s job descriptions reflect this change, compared with just 31% a year before. They describe their ultimate goal of 100% as feeling within reach by next year. Further, agencies have embraced work-based learning, with 33 new work-based learning programs implemented since September of 2023. Six of those are new apprenticeship programs.

Discussion

In the past three years, 25 states have passed executive orders or legislation to remove bachelor’s degree requirements from state jobs. In this paper, we lay out results which suggest the commitments taken by the first set of states to remove degree requirements from public sector jobs are accompanied by shifts in public awareness and changes in the job posting behavior of state employers.

First, our analysis of news coverage and a novel multi-wave survey shows increased awareness of skills-based hiring and STARs among both employers and workers. First, an increase in coverage regarding skills-based hiring and degree requirement removals in the popular press, with a disproportionate share of coverage centering on the public sector relative to the private sector, demonstrates both the increased salience of the policies and practices and the

dominant role of the public sector in this space. This trend mirrors the momentum in state adoptions of related policies over the past three years.

Further, our analysis of job posting behavior shows shifts in action following this heightened awareness: in the first 12 months following a commitment alone, there has been a 7 percent increase in the number of middle- and high-wage job postings open to STARs in the first 18 states to make the commitment. The most conservative estimates from our linear probability model suggest that progress is both significant and gradual: in states that made a policy commitment, bachelor's degree requirements in state government job postings decline by 2.5 to 3.1 percentage points for each additional year of policy exposure. These results align with the learnings from our interviews with government leaders in the state of Colorado, which showed that successful implementation of this type of policy shift takes significant time, energy, and organizational buy-in.

The recent skills-based executive orders are opening jobs for STARs that, in the long-run, hold the potential to increase labor market access, reduce labor market inequality, and meet the talent needs of the public sector. A key determinant of their success in this mission will be the extent to which state governments can faithfully follow through on the promise of their policies and do the work to shift organizational practices in ways that are inclusive to STARs. Our findings underscore the need for continued analysis of the impact of these initiatives to assess not only the effectiveness of these policies in opening access to STARs across different states but also their success in moving STARs into meaningful roles within the public sector.

Public sector workforce innovations have a history of advancing social progress for issues ranging from wage equality to race integration (Zipp 1994). Given the evidence of the results of their efforts to date to shift their talent strategies toward the use of skills as a common

denominator in talent management, the public sector could lead the way for the private sector, influencing the transformation of the labor force for the coming century.

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Appendix

State	Date	Commitment	State	Date	Commitment
Maryland	3/15/2022	Administrative Order	Florida	6/16/23	Passed Legislation
Colorado	4/14/2022	Executive Order	Connecticut	6/29/2023, 6/6/2024	Passed Legislation
Tennessee	04/25/2022	Passed Legislation	Missouri	7/6/2023	Passed Legislation
Utah	3/11/2021, 12/13/2022	Passed Legislation, Executive Action	California	8/31/2023	Executive Order
Pennsylvania	1/18/2023	Executive Order	Michigan	10/4/2023	State Initiative
Alaska	2/14/2023	Executive Order	Minnesota	10/30/23	Executive Order
North Carolina	03/13/23	Executive Order	New York	1/9/2024	Administrative Order
Arizona	04/07/2023	Passed Legislation	Delaware	1/11/24	Policy Change
New Jersey	4/10/23	Executive Order	Massachusetts	1/25/24	Executive Order
South Dakota	4/24/23	Executive Order	Idaho	3/19/24	Passed Legislation
Georgia	4/27/23	Passed Legislation	Alabama	5/17/24	Passed Legislation
Ohio	5/15/23	Executive Order	Louisiana	6/3/24	Passed Legislation
Virginia	5/30/23	Executive Order	Washington	6/6/24	Passed Legislation

Table A1. List of State Executive Orders, Legislation, and Initiatives.

Please note: Some states identified with Executive Orders may have removed degree requirements through administrative authority of the governor

<u>Awareness</u>	<u>Public Commitment</u>	<u>Internal Actions (Organizational Behaviors)</u>	<u>Internal Actions (Individual Behaviors)</u>	<u>Changed Outcomes</u>
<ul style="list-style-type: none"> ● Media stories, citing new reports/data on STARS, and/or that other states have made commitments ● Public Awareness Campaigns (e.g., Tear The Paper Ceiling) ● Conferences and events where new reports/data and/or commitments/actions that other states are taking ● Knowledge of STARS w/in own lives and/or organization 	<ul style="list-style-type: none"> ● Executive Order, Administrative Order, HR Policy Change or legislation to: <ul style="list-style-type: none"> ○ Remove unnecessary degree requirements ○ Review and/or develop a report on education requirements for state jobs ● Participation in the National Governors Association’s Skills in the States Community of Practice ● Initiation of Task Force on state hiring practices ● Budget allocation to support implementation of skills-based practices 	<ul style="list-style-type: none"> ● Develop accountability measures ● Hire staff to focus solely on implementation of skills-based talent practices ● Build skill equivalencies for job categories ● Design updated job descriptions template ● HR policy guidance designed and shared with HR teams and hiring managers ● Build and deliver training for HR analysts and hiring managers ● Build interventions to support the development of skills-based talent system, like: <ul style="list-style-type: none"> ○ Skill banks for job categories ○ Shared certifications ○ Updates to state job boards ○ Updates to ATS/HRIS system ○ Definition and guidance of skills-based assessments ● Update classification system to be based on skills through personnel board/rules ● Make skills-based talent practices an HR universal policy 	<ul style="list-style-type: none"> ● Participate in training on skills-based talent practices for hiring managers ● Utilize guidance and templates for building job descriptions based on skills ● Use required skills-based job templates in ATS/HRIS ● Determine which of skills-based assessments to utilize to evaluate candidates ● Utilize skills-based assessments to evaluate candidates at multiple stage-gates 	<ul style="list-style-type: none"> ● Increased number of STAR applicants ● Increased number of STARS making it through minimum qualification reviews ● Increased share of STARS in middle and high wage occupations ● Increased internal mobility for STARS in state employment

Table A2. A Continuum of Actions Taken by States to Remove Unnecessary Degree Requirements and Implement Change Management Strategies to Improve Public Sector Hiring Outcomes.

Question: Which, if any, of the following actions have you taken in the past six months?									
Sample	Actions	Percent of Respondents (%)							
		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8
STARs	"I have spoken to friends or family about how they should apply for jobs they have the skills for, even if the job requires a college degree and they don't have a degree."	22	23	26	27	27	25	25	27
	"I have applied for at least one job I have the skills for that said it required a bachelor's degree."	21	22	24	23	22	24	22	24
	"I have described myself as a "STAR" - Skilled Through Alternative Routes - to a potential employer, coworkers, family, friends, or others, in person or online or in writing."	11	11	13	13	11	13	14	16
	"I have gone online to learn more about workers Skilled Through Alternative Routes or workers without bachelor's degrees."	13	14	13	14	14	14	13	15
	"I have posted on social media about how college degree requirements for jobs can keep skilled, qualified people from getting the jobs they deserve."	N/A	N/A	9	8	8	8	7	8
	At least "One Positive Action" listed above	47	48	54	56	55	54	56	58

Table A3. Positive Actions Selected by STAR Survey Respondents from 2022 - 2024.

Question: Which, if any, of the following actions have you taken in the past six months?					
Sample	Actions	Percent of Respondents (%)			
		Wave 1	Wave 2	Wave 3	Wave 4
Employers	"I have spoken to others at my company about hiring workers skilled through alternative routes, or workers with skills but no college degree."	54	49	46	46
	"I have hired someone who did not have a bachelor's degree for a job that had previously only been open to people with bachelor's degrees."	N/A	47	42	47
	"I have spoken to others in my professional network about hiring workers skilled through alternative routes, or workers with skills but no bachelor's degree."	52	43	43	46
	"I have helped change the policy at my company to encourage hiring workers skilled through alternative routes, or workers with skills but no bachelor's degree."	36	36	39	34
	"I have gone online to learn more about workers skilled through alternative routes, or workers with skills but no bachelor's degree."	32	36	32	34
	"I have changed at least one job description to remove a bachelor's degree requirement."	29	33	31	28
	At least "One Positive Action" listed above	47	54	55	56

Table A4. Positive Actions Selected by Employer Survey Respondents from 2022 - 2024.