LinkedIn Economic Graph

Pathways into STEM jobs

November 2023

Nikhil Gahlawat
Staff Data Scientist

Matthew Baird
Senior Staff Economist

Silvia Lara
Data Scientist

Rosie Hood
Senior Data Scientist

Paul Ko
Senior Staff Data Scientist

Pathways into STEM jobs

Economic Graph White Paper

November 2023

Jobs in science, technology, engineering, and mathematics (STEM) have higher incomes and lower unemployment rates on average compared to other jobs. While workers typically prepare for STEM employment through a STEM degree program, many in the STEM workforce do not have a STEM degree. Given this accessibility to STEM jobs and their benefits, we examine pathways into STEM jobs, including for high school graduates and non-STEM college degree holders compared to STEM degree holders. We look at levels of STEM job experience and interest in STEM jobs by workers of different educational backgrounds. We examine the rate of transition into STEM jobs, and how workers persist once in STEM. While pathways into STEM exist, we see differences the types of STEM jobs obtained by workers of different educational backgrounds.

Introduction

Jobs in science, technology, engineering, and mathematics (STEM) hold important advantages over other jobs. On average, workers in STEM earn higher wages and experience lower unemployment rates compared to their non-STEM counterparts (Anderson et al., 2021; Baird et al., 2017; Melguizo & Wolniak, 2012). Additionally, the number of STEM jobs has been outpacing the growth of other occupations (Langdon et al., 2011).

Workers typically prepare for STEM employment by pursuing a degree in a STEM field, ranging from associate, bachelor's, masters', or PhD program. However, it's important to note that STEM jobs do not always require workers to hold STEM degrees, opening up opportunities for those with alternative education or credentials (Noonan, 2017). In fact, STEM jobs have been growing at a faster rate than the number of STEM graduates, suggesting that employers may need to consider candidates beyond those with traditional STEM backgrounds (Langdon et al., 2011). This growing demand for STEM positions also raises questions about how high school education can better align its curriculum to meet these evolving workforce needs (Bozick et al., 2017; Franco et al., 2012).

To gain insight into how individuals without STEM degrees transition into STEM roles, we conducted an analysis of LinkedIn profiles belonging to members in the United States who graduated from high school, associate, bachelor's, or master's degree programs between 2013 and 2022. For those with college degrees, we further categorized them into STEM and non-STEM graduates based on their field of study, following the classification outlined by Baird et al. (2023). High school graduates, by default, were classified as non-STEM due to the absence of a specific STEM-focused degree. It's worth noting that this grouping for high school graduates encompasses both individuals with a strong affinity for STEM and those with varying levels of STEM training. Our definitions of STEM jobs and STEM skills align with established methodologies outlined in Baird et al. (2023).

In this paper, we examine the nature of pathways into STEM employment and how they differ by educational attainment. Throughout, we categorize educational attainment into seven groups: high school graduates, and then STEM and non-STEM associate, bachelor's, and master's degree holders. STEM and non-STEM degree holders are determined by their field of study. First, we establish the disparities in STEM employment participation rates across these educational groups. Next, we explore factors that may impact these differences, such as interest in STEM (indicated by viewing and applying for STEM jobs) and skills. We demonstrate how these factors relate to the time it takes to secure the first STEM job after graduation. Additionally, we discuss variations in the types of first STEM jobs held across education groups and examine differences in how members persist in STEM employment.

Key findings

- **STEM graduates are more likely than non-STEM graduates to work in STEM** Over 50% of STEM degree holders for each education level have worked in at least one STEM job, with higher rates for higher education levels.

Meanwhile, 10 to 15% of non-STEM degree holders have worked in at least one STEM job, with the highest rate among this group being for high school graduates.

- Among those who work at least one STEM job, STEM degree holders, on average, spend approximately 75% of their total employment history in STEM roles, while non-STEM degree holders spend around 50%.

- **Interest in STEM jobs is not limited to those with STEM degrees** In 2022, 57.2% of all high school graduates who viewed or applied for any jobs on LinkedIn had at least one of those jobs which was STEM, up from 48.5% in 2020. All others education groups saw a similar increase over that span.

- Over 20% of high school graduates applied for at least one STEM position, higher than any other non-STEM graduate group (although substantially lower than the around 60% for STEM graduates).

- **STEM skills increase the speed to first STEM job** Having STEM skills significantly increases the likelihood of securing a STEM job each month. For example, non-STEM graduates with STEM skills are two to three times as likely to find their first STEM job each month compared to those without. Finding ways to help interested non-STEM degree holders acquire STEM jobs improves pathways into STEM work.

- **There are diverse pathways into STEM by education level** High school and associate degree graduates are more likely than STEM degree holders to enter STEM work through technician, technical support, and pharmacy roles. In contrast, STEM bachelor's and master's degree graduates are more likely to have engineering roles as their first STEM job. These groups also have stark differences in the STEM skills content of their pre-STEM employment and first STEM job.

- **Most metrics have been improving over time** The probability of finding STEM employment within two years of graduation grew across all groups. For example, the 2013 cohort of high school graduates had a probability of working in STEM within the first two years of 4.2%. By 2021, that same probability had risen to 11.3%, indicating a 2.7 times increase.

Differences in STEM work experience

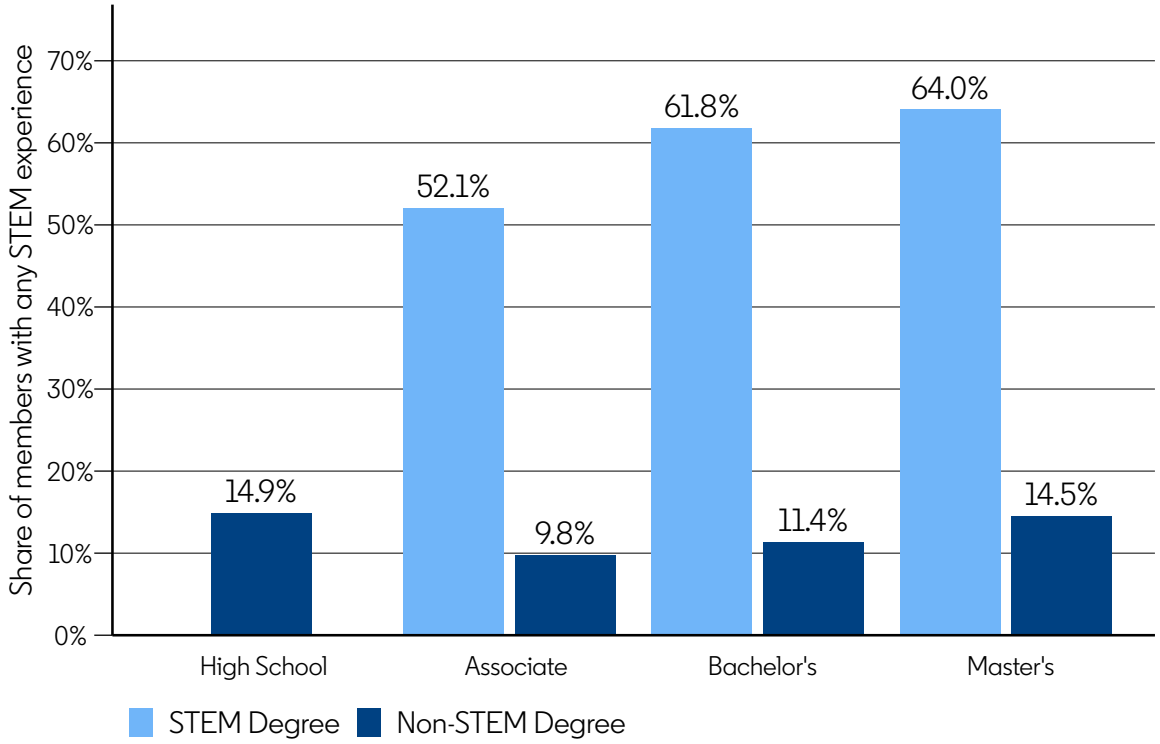
Overall STEM work experience

According to recent data from LinkedIn, nearly 3 out of 10 members currently employed in STEM positions in the United States do not hold a STEM degree. Around 9% of STEM workers have achieved their highest level of education with either a high school or associate degree.

Figure 1 illustrates the percentage of individuals in each education group who possess STEM job experience. As anticipated, STEM degree holders exhibit higher rates of STEM work experience. More than half of STEM graduates, across various education levels, have engaged in at least one STEM job since graduation. Specifically, the rates are highest for bachelor's and master's degree holders (61.8% and 64.0%,

Figure 1

Share of members with any STEM job experience



respectively) compared to associate degree holders (52.1%).

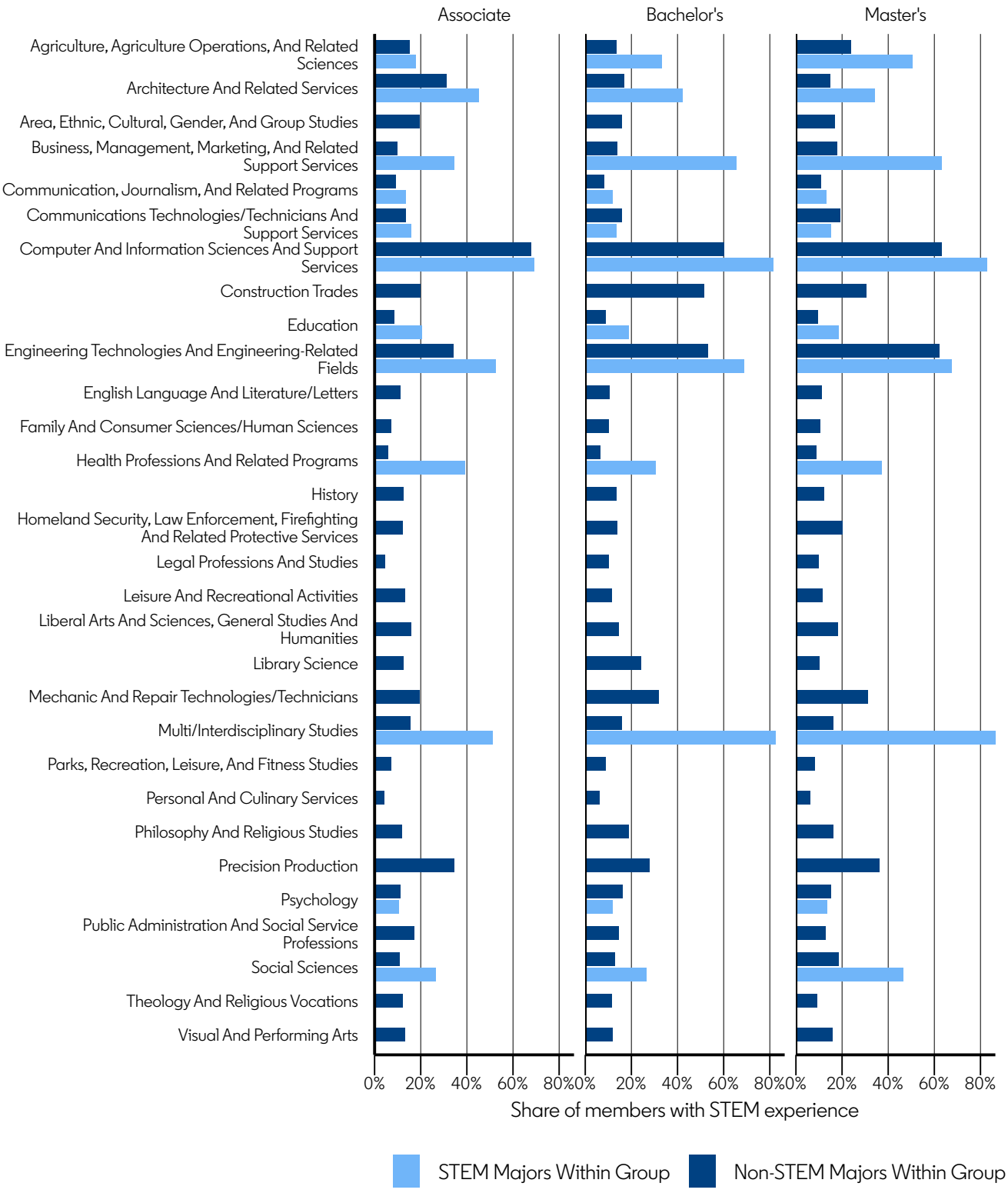
Nevertheless, a notable proportion of non-STEM degree holders also possess STEM work experience. Among those without STEM degrees, the incidence of STEM experience—defined as the percentage of LinkedIn members who have held at least one STEM job since graduation—varies from 9.8% for associate degree graduates to 14.5% for master's degree graduates. Interestingly, high school graduates exhibit a slightly higher rate of STEM work experience (14.9%). This may be attributed to the fact that, unlike college graduates, high school graduates do not have the same opportunity to express their interest in STEM through the choice of a STEM major. Consequently, high school graduates with an interest in STEM are grouped with those without such inclination, potentially increasing the proportion working in STEM jobs compared to non-STEM college graduates. Although not depicted in this figure, note that all rates have displayed relative stability over time, consistently revealing a substantial portion of members without specialized STEM training who nevertheless acquire STEM work experience.

STEM work experience by field of study

As noted, although close to two-thirds of bachelor's and master's degree STEM graduates go on to hold a STEM job, only half of associate degree STEM graduates go on to STEM employment. In Figure 2, we investigate the STEM work experience (post-graduation) by field

Figure 2

STEM experience rates by field of study



of study groups in college.[1] We present it for the more common fields of study.

The broad trends found in Figure 1 are largely reflected when broken down by STEM fields of study, with only a handful of exceptions.

For example, 86% of bachelor's degree graduates with engineering degrees—the most popular STEM bachelor's discipline with over 20% of all STEM bachelor's degree graduates—go on to work in STEM, while only 55% of associate degree graduates in engineering have any subsequent STEM work experience.

The largest disparity is observed among members who specialize in Physical Sciences. Here, 70.3% of bachelor's graduates and 81.8% of master's degree holders proceed to gain STEM work experience, while only 31.4% of associate degree graduates in the same discipline follow suit. It's worth noting that there are only a few STEM fields in which associate degree holders exhibit higher rates of STEM work experience than their counterparts with bachelor's degrees. An example is Architecture and Related Services, where 30.3% of associate degree graduates have STEM work experience, compared to 16.6% of bachelor's graduates in the same field of study.

In the Health Professions category, STEM fields of study show a slightly higher proportion of workers transitioning to at least one STEM job among associate degree holders, at 39%, compared to 31% for bachelor's degree holders. However, it's important to highlight that this accounts for less than 4% of associate degree graduates in STEM fields. Conversely, in fields popular among associate degree graduates, such as Computer and Information Sciences, only 38% of associates graduates in STEM manage to secure STEM work experience, marking a gap of more than 10 percentage points compared to bachelor's degree graduates (69% compared to 81%).

As shown earlier, STEM experience rates for non-STEM graduates are lower than STEM graduates. However, even here we observe experience gaps between associate, bachelor's, and master's degree graduates across non-STEM fields of study.

Potential factors of STEM participation

Interest in STEM jobs

To understand the level of interest in STEM jobs, we next examine the proportion of LinkedIn members who viewed or applied to at least one STEM job on the platform (out of the sample of those who viewed or applied to any jobs on the platform), from 2020 to 2022. These findings are shown in Figures 3 and 4. In the appendix, we estimate the average fraction of job applications which are for STEM job postings. These metrics are particularly valuable for assessing interest among high school graduates, who lack the opportunity to signal their interest through a STEM-focused field of study.

[1] Note in Figure 2 the absence of many bars for STEM majors within the group (left panel). This is due to there not being any specific STEM majors within the larger field of study grouping in many cases, such as in English or in History. Nonetheless, there are at least some non-STEM majors within even STEM-centered field of study groupings (such as engineering), explaining the presence of bars in all cases on the right panel.

Figure 3

Proportion of members who view or apply for at least one STEM job posting

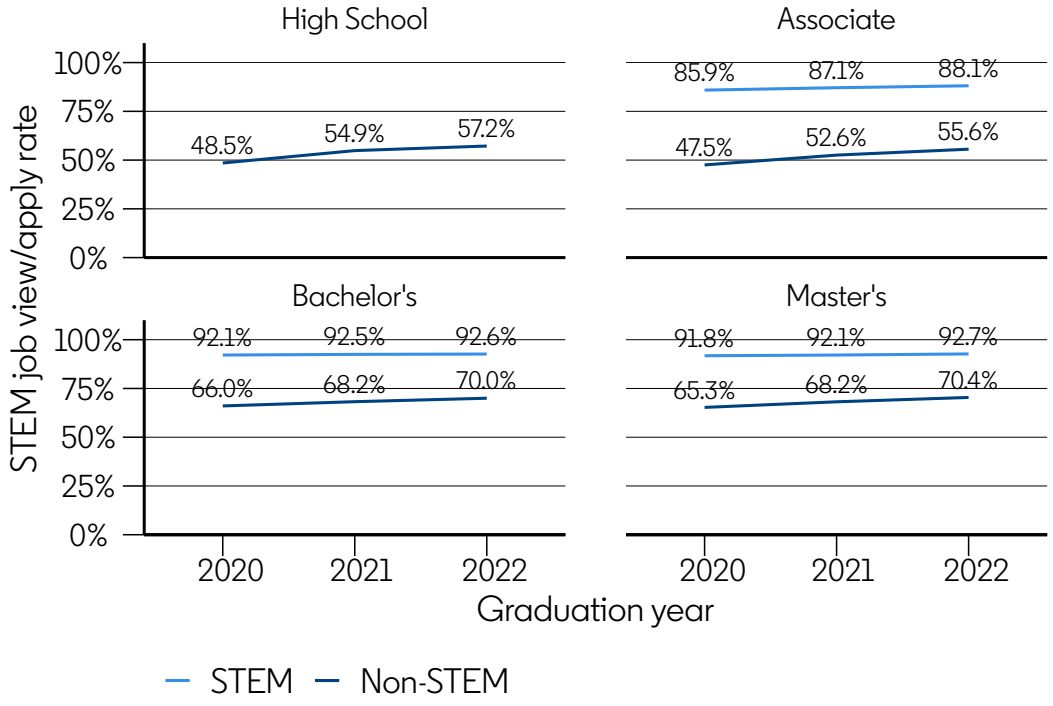
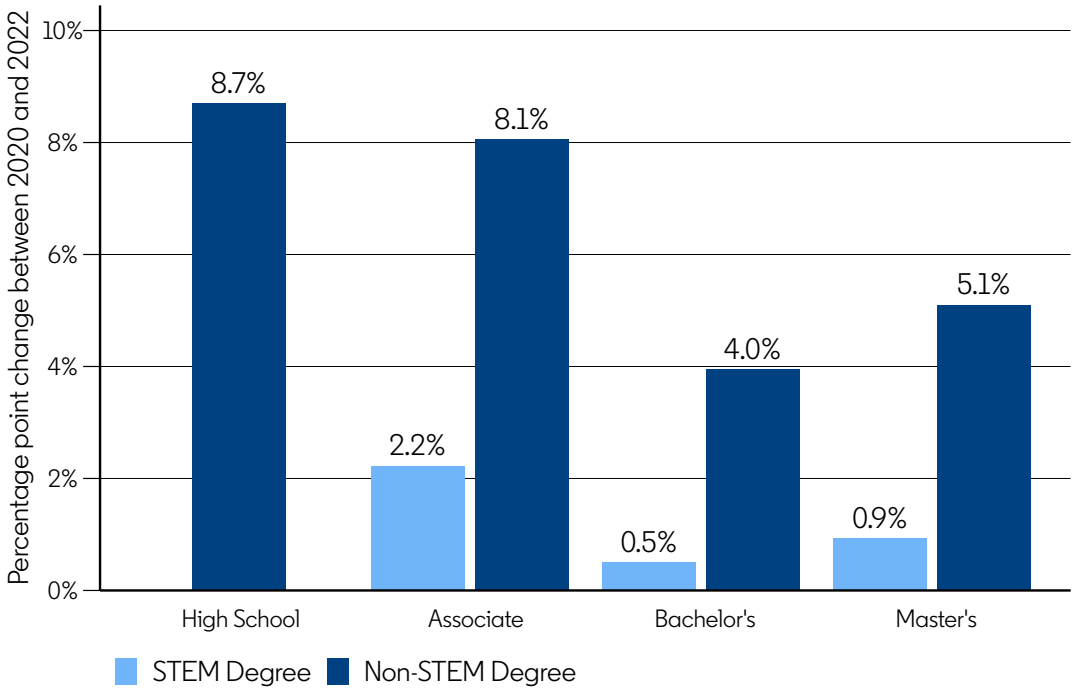


Figure 4

Growth in STEM job view and apply rates



STEM degree holders exhibit substantially higher levels of engagement with STEM positions compared to their non-STEM counterparts. For instance, in 2022, 92.6% of bachelor's degree holders with STEM backgrounds who viewed or applied for any jobs on LinkedIn did so for at least one STEM job posting. In contrast, only 70.0% of bachelor's degree holders without a STEM background showed similar interest.

The disparity is even more pronounced when it comes to job applications (refer to Appendix Figure A.1): 61.3% of job applications from STEM bachelor's degree graduates were directed towards STEM positions, whereas for non-STEM bachelor's degree holders, this figure was only 7.0%. Similar patterns emerge when comparing associate and master's degree holders.

While high school graduates show lower levels of interest in STEM jobs compared to STEM college graduates, there is a sizeable fraction viewing and applying for STEM jobs. In fact, in 2022, high school graduates averaged 21.6% of job applications for STEM jobs, far exceeding the level for non-STEM college graduates (8.2% for associate degree, 7.0% for bachelor's degree, and 11.6% for master's degree holders).

We also find evidence of growth in interest in STEM work over the last two years, especially among non-STEM degree holders. While this can be seen in Figures 3 and A.1, we show it more clearly in Figures 4 and A.2 by examining the percentage change in the metrics between 2020 and 2022 for each group. For Figure 4, we see that high school graduates had the highest increase in the share of members viewing or applying for at least one STEM job posting, increasing from 48.5% in 2020 to 57.2% in 2022, for a gain of 8.7 percentage points. Each of the non-STEM education groups outstripped growth in this measure of STEM interest.

Figure A.2 displays similar trends for the average fraction of job postings dedicated to STEM positions. Interestingly, we observe small declines in the share of applications directed towards STEM jobs for STEM bachelor's and master's degree holders. High school graduates, on the other hand, experienced the most substantial increase, with a 6.9 percentage point rise (from 14.6% to 21.6%). Associate STEM degree holders saw a 1.1 percentage point increase.

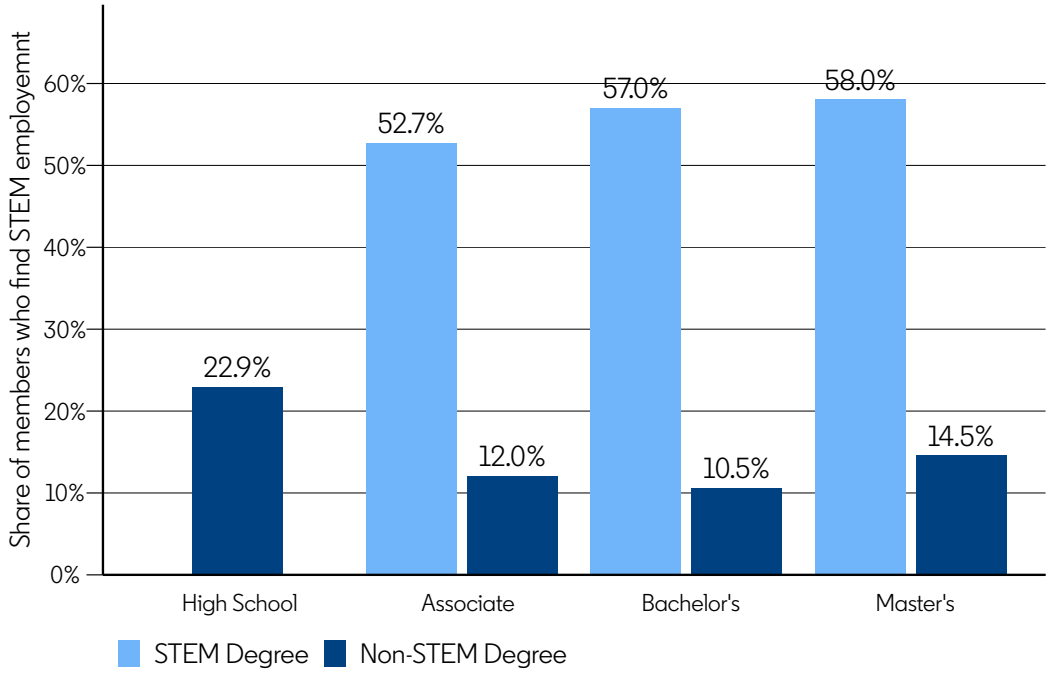
Figure 5 offers an update on Figure 1 by examining the proportion who end up working in STEM by education group, but focused on those who have expressed interest in STEM through viewing or applying for at least one STEM job posting. Not only is interest in STEM rising among high school graduates, they may be more likely to get hired in STEM jobs than other non-STEM graduates. Looking at graduates from 2020-2022, nearly 1 in 4 high school graduates that applied to a STEM job on LinkedIn went on to find STEM employment (22.9%). That is double the rate for non-STEM associate and bachelor's graduates and higher than non-STEM masters, and higher than the overall rate among high school graduates from Figure 1 (14.9%).

STEM skills

Education plays a crucial role in equipping individuals with the skills necessary for engaging in STEM employment. Particularly for those without a STEM degree, possessing STEM skills can serve as an entry point into STEM fields. We proceed to investigate variations in the rate of

Figure 5

Share of members with any STEM job experience, among those who have viewed or applied for at least one STEM position



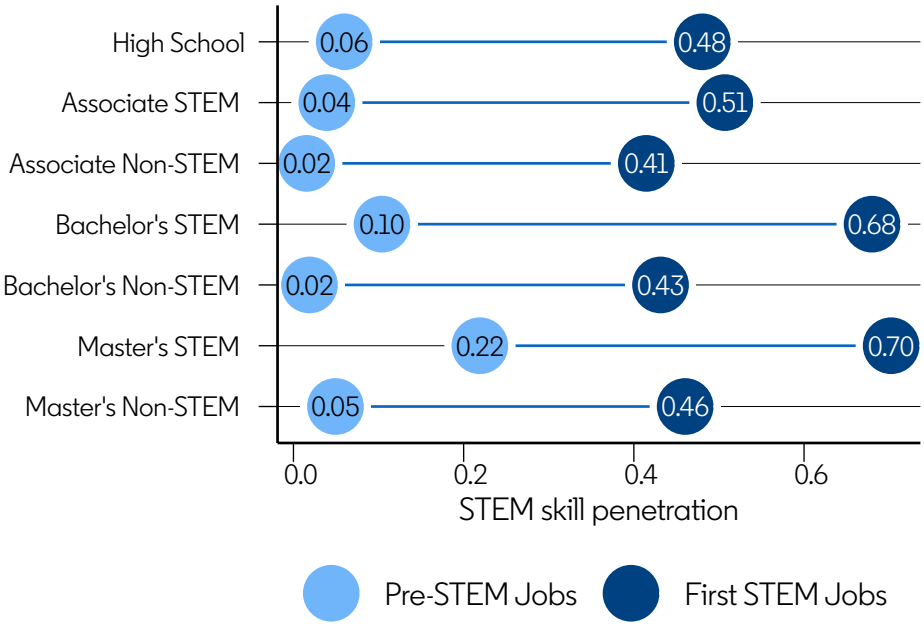
STEM skill penetration, both prior to and within the first STEM job held by each group. To conduct this analysis, we utilize the LinkedIn Skills Genome, which delineates the network of skills most pertinent to each job. Following the methodology outlined in Baird et al. (2023), we categorize each skill as either STEM or non-STEM. The STEM skill penetration rate quantifies the proportion of the top 30 skills for each occupation that are STEM-related, ranging from 0 (no STEM skills involved) to 1 (exclusively STEM skills). Using this measure, we examine the occupations in which each member works and compute the average STEM skill penetration within groups. The results of this analysis are depicted in Figure 6.

First, we look at the jobs that members had before their first STEM job, or their "pre-STEM" jobs. On average, these pre-STEM jobs utilize substantially fewer STEM skills than those in their first STEM job. STEM skill penetration for pre-STEM jobs ranges between 0.02 (non-STEM associate degree holders) and 0.06 (high school graduates). The rate is similar for STEM associate degree holders, but higher for bachelor's STEM (0.10) and master's STEM (0.22). Overall, these findings suggest that even before getting their first STEM job, STEM degree holders are in jobs that have more exposure to STEM skills.

However, the differences between education groups in the skill penetration rates of their pre-STEM jobs is substantially smaller than the gaps between the STEM skills in the pre-STEM jobs and first STEM jobs. STEM skill penetration rates are higher for STEM degree holders, between 0.04 to 0.22.

Figure 6

Average STEM skill penetration



Looking at the STEM skill penetration rate for first STEM jobs, we find that on average non-STEM graduates enter jobs that utilize fewer STEM skills than STEM graduates. This gap is particularly wide for bachelor's and master's degree graduates. The STEM skill penetration rates for the first STEM jobs of non-STEM graduates ranges from 0.42 for associate degree graduates to 0.48 for high school graduates. Meanwhile, bachelor's and master's STEM degree holders move into their first STEM job with average STEM skills penetration rates that are 0.68 and 0.70 respectively, substantially higher than the other groups.

While it is not surprising that members work in pre-STEM jobs that use far fewer STEM skills than their first STEM skills job (by a wide margin), there are a few more surprising facts. First, we note that there is a surprising consistency in the magnitude of the jump in STEM skill penetration for the pre-STEM job and first STEM job—approximately an increase of 0.5 for each education group. Second, we note that there are still differences by education group among the STEM skills penetration for the first STEM jobs. Bachelor's and Master's STEM degrees, at around 0.7 (or 70% of their jobs' skills being STEM skills), far outpace the other groups. However, similar to what we found before for the interest in STEM and rate of STEM, high school graduates occupy a higher penetration rate of STEM skills than any of non-STEM college graduate group. This suggests that high school graduates combine STEM-inclined and non-STEM-inclined workers in a way that degrees separate out. This is reflected even in high school graduates who enter into STEM jobs having a higher fraction of their job requiring STEM skills than the STEM jobs that non-STEM graduates enter into.

Time to first STEM job

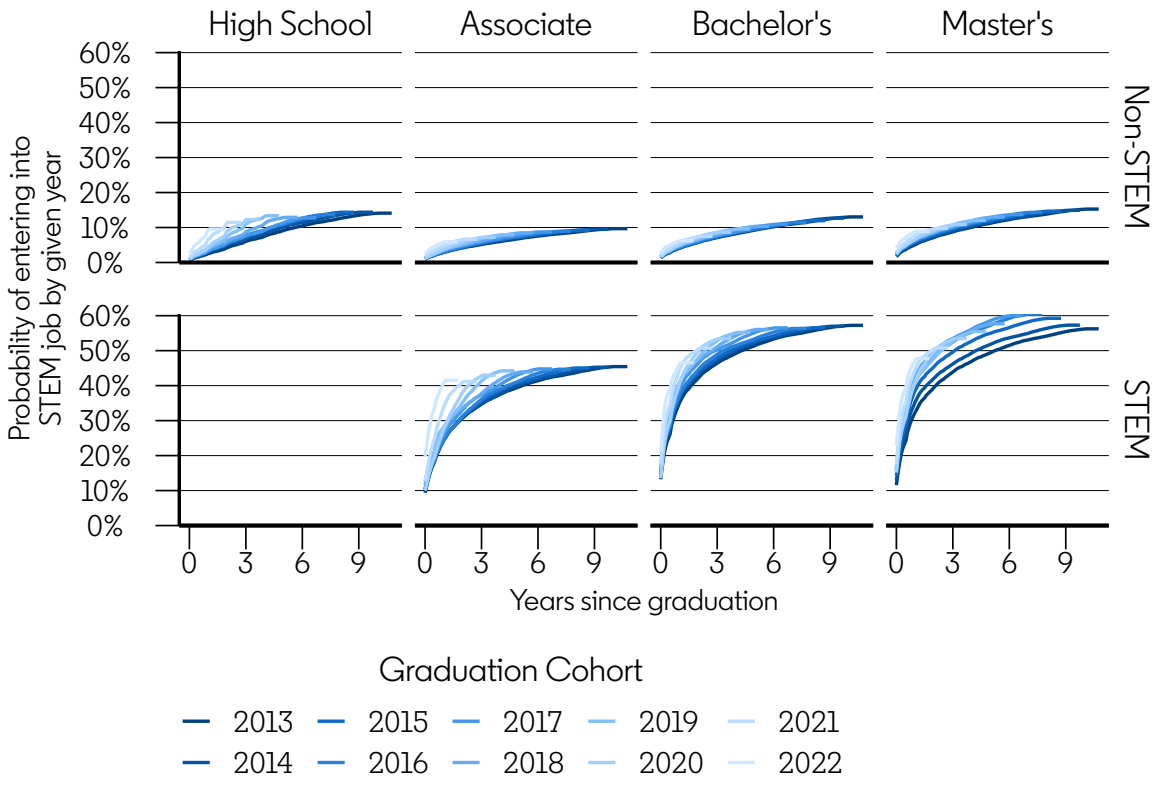
Comparison of survival curves

Having explored differences in interest in STEM and STEM skills penetration, we now turn our attention to disparities in the time it takes to secure the first STEM job and the roles played by STEM interest and skills. To determine the likelihood of a member obtaining STEM employment after graduation, we initially employ Kaplan-Meier estimates of the 'survival' probability. This approach accounts for the fact that individuals—especially recent graduates—may not have yet reached their first job, and we do not directly know how long it will take them (which for our estimation is referred to as censored data) The Kaplan-Meier curves, depicted in Figure 7, illustrate the proportion of individuals in each group who, by a specific time period, have worked in at least one STEM job. For instance, for the 2013 cohort of bachelor's STEM graduates, 35% had secured STEM employment one year after graduation, 42% within two years, and 46% within three years, and so forth.

Our results show that the probability of a STEM bachelor's degree or master's degree graduate having had at least one STEM job by two years after graduation was around 50% for the 2021 and 2022 graduation cohorts. Each earlier cohort had lower probabilities, suggesting that more recent cohorts have higher success in

Figure 7

Proportion of cohorts who have worked in at least one STEM job by years since graduation



transitioning from STEM education to STEM employment. STEM associate's graduates were slightly lower, around 41%. Non-STEM college graduates were much less likely to have had at least one STEM job by two years post-graduation, at levels ranging between 7-10%. High school graduates had a slightly higher probability, around 11%.

There also has been a trend of improvement across graduation cohorts, with more recent graduating cohorts having a higher share in their first STEM job at earlier periods, compared to earlier cohorts. This is seen by the color gradient in Figure 7 moving from dark blue (early cohorts) shifting up to higher lines with lighter blues (later cohorts). For example, the 2013 graduating cohorts, both high school graduates and non-STEM associate degree graduates had a probability of working in STEM within the first two years of 4.2%. By 2021, that same probability had risen to 6.6% for associate degree graduates and 11.3% for high school graduates, a 1.6x increase for non-STEM associate's degree graduates and a 2.7x increase for high school graduates. The probability of finding STEM employment within two years of graduation grew across all other groups as well but more modestly, between 1.2x to 1.4x.

Regression analysis of time to first STEM job

Using the same framing as these survival charts, we next estimate Cox proportional hazard models to measure the contributing of different factors that increase or decrease the probability of a member starting in their first STEM job each month, and the extent to which controlling for these factors shift the gaps between educational groups. The full regression results are in Table A1. We first estimate four models, with an increasing number of covariates included. The first model (M1) is unadjusted and includes only the educational group indicators, serving as a baseline to compare the other models. The second model (M2) adds controls for job interest variables, such as views and applications. Finally, the full model (M3) additionally adds a large set of controls for the skills the member had listed before STEM employment.

In the unadjusted model (M1), bachelor's and master's STEM degree graduates have the highest probabilities of finding a STEM job each month, as seen by the hazard ratios presented in the table. Hazard ratios represent the increase in the probability of starting their first STEM job each month, relative to the baseline group. The baseline group we use is those with a bachelor's STEM degree. Values above 1 signify that graduates with that characteristic are more likely than the reference group to start their first STEM job each month. For example, the hazard ratio for master's STEM degree is 1.02. This can be interpreted as master's STEM degree holders who have not yet started their first STEM job being 1.02 times as likely (or 2% more likely) each month to start a STEM job than the reference group, bachelor's STEM degree holders.

Additionally, the fact that bachelor's STEM degree holders are among the most likely is signified by the other education group's hazard ratios being less than one. For example, STEM associate degree graduates are slower to find their first STEM job. Specifically, they are about 76% as likely (or, alternatively, 24% *less* likely) as bachelor's STEM degree holders - our comparison group - to find their first STEM job in

each additional month after graduation. High school graduates are only 16% as likely to find STEM employment each additional month, only slightly more likely than non-STEM college graduates (10% as likely for non-STEM associate degree graduates, 11% for bachelor's, and 15% for master's).

When we account for job search behavior (M2), the hazard ratio for high school graduates rises more than college graduates, to the point where, among those with no job views or applications for STEM positions, high school graduates are 23% as likely as STEM bachelor's degree holders to find STEM employment each additional month. Interestingly, among those without STEM job views or applications, graduates with master's STEM degrees are less likely than bachelor's STEM degree graduates to find their first STEM job each month.

Of greater note, is the influence of applying to at least one STEM job on the hazard ratio of getting a STEM job. Instead of STEM bachelor's graduates being six times as likely each month to find their first STEM job compared to high school graduates in the unadjusted model (1/0.16), among those who applied to at least one STEM job, STEM bachelor's graduates are only twice as likely each month to find their first STEM job (1/(exp(ln(2.05)+ln(.23))). A comparison across education groups shows that the biggest increase in the probability of finding STEM employment from applying to STEM jobs occurs for non-STEM degree holder groups; however, this may partially be driven by how much less likely they are to find STEM employment overall, with a smaller baseline. In fact, STEM bachelor's degree graduates have the weakest relationship between applying to a STEM job and getting STEM employment, although this is still a 65% increase in the probability of finding a STEM job each month.

Our final model (M3) shows additionally controls for the types of skills held by the members. As expected, members who signal that they have at least one STEM skill, particularly any engineering skills, have higher likelihoods of finding STEM work each month (i.e., larger hazard ratios). While high school graduates benefit from this signaling—those who do are twice as likely to get their first STEM job each additional month after graduation compared to those who do not—the benefit is largest for non-STEM college graduates, who are more than three times as likely to find their first STEM job each month when signaling that they have STEM skills compared to members in the same education group who do not have STEM skills listed. Engineering skills were also uniformly related to higher probabilities of finding STEM work.

There are also some non-STEM skills that are associated with higher STEM employment hazard ratios for non-STEM college graduates. Those who list any military skills have hazard ratios that are between 19%-36% higher than those who do not. Non-STEM bachelor's degree holders who list skills related to construction—such as construction drawings or HVAC—have hazard ratios that are 74% higher than those who do not list those skills. And non-STEM associate and bachelor 's degree graduates who list digital literacy skills—such as word processing or spreadsheets—have slightly higher hazards ratios: 3%-6% more than those who do not list these skills.

First jobs in STEM

We next examine the most common words contained in the job title of each member's first STEM job, by education group. The top five words for each group are reported in Appendix Table A.2.

High school and associate degree graduates enter the STEM workforce through different types of jobs compared to bachelor's and master's degree graduates. When moving into their first STEM job, high school graduates as well as both STEM and non-STEM associate degree graduates have a higher probability of moving into technician, technical support, and pharmacy roles than bachelor's and master's degree graduates. For example, between 7-9% of sub-baccalaureate graduates have a first STEM job with "Technician" in the title, compared to less than 3% for bachelor's and master's degree graduates. Common titles include Electrical Technician, Electronic Mechanic, Biomedical Equipment Technician, and Manufacturing Technician. Similarly, around 3% of sub-bachelors have "Pharmacy" in their first STEM job title, compared to less than 1% for bachelor's or higher degrees. The term "Support" is 2.3 times as likely to be part of the job, "Quality" (1.8x), "Technical" (2x), and "Technician" (3.2x) are much more common in first STEM titles for high school and associate graduates.

On the other hand, while occupations with "Engineer" in the title are among the most popular first STEM jobs across all educational groups, STEM bachelor's and master's degree graduates are far more likely to have these jobs as their first role in STEM. 19.8% and 20.9% of STEM bachelor's and master's degree graduates respectively have "Engineer" in their first STEM job title, compared to 5.1% for high school graduates, and between 4-7% for all other groups. Some common titles include Software Engineer, Mechanical Engineer, Design Engineer, and System Engineer.

Interestingly, the divide in words appears to be starker across educational attainment than across STEM vs non-STEM degrees. Thus we see technician, specialist, and support dominated sub-baccalaureate job titles, whether the degree was STEM or not, while bachelor's or higher degrees see more prevalence in engineer or analyst, again whether or not the degree was STEM.

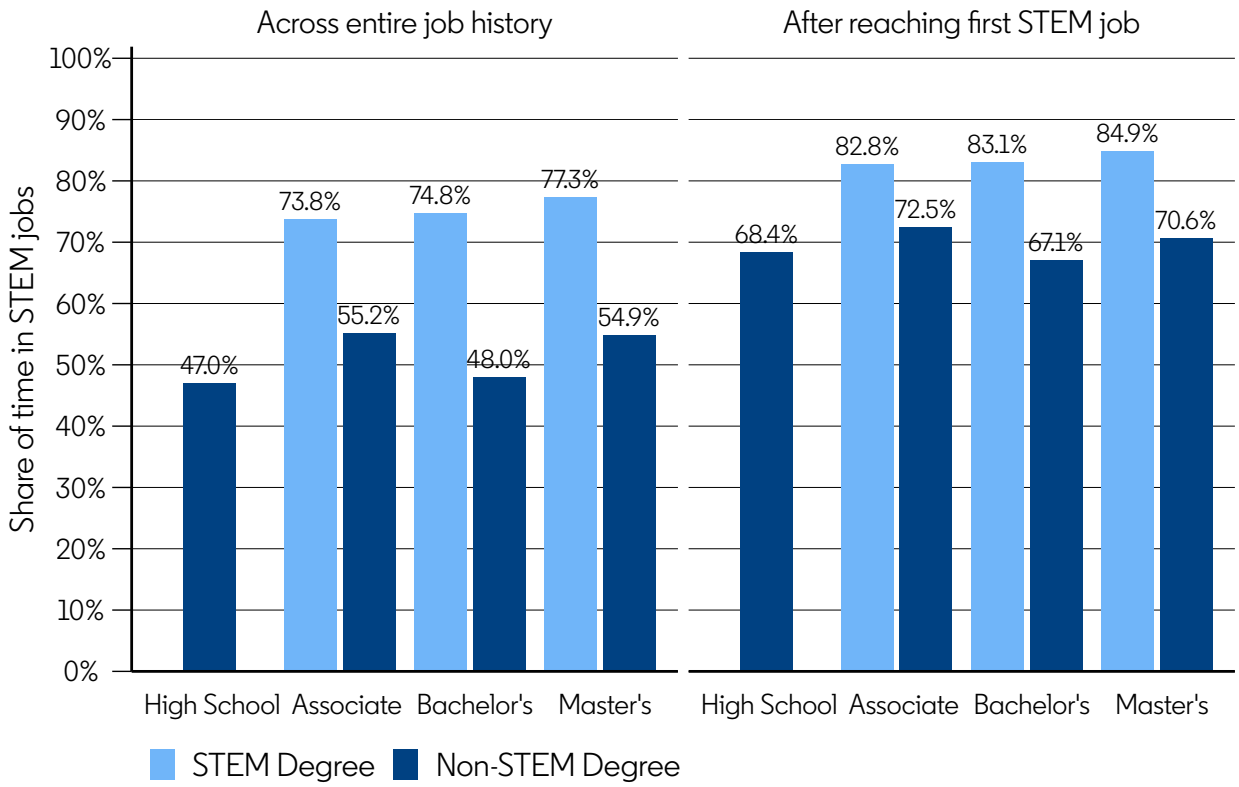
Persistence in STEM jobs

We next calculate the share of months that we observe for each worker that is spent in STEM jobs, among workers who are employed in at least one STEM job in our data. We examine the average share of months both across their entire job history (including before their first STEM job) as well as after reaching their first STEM job (including that job).

If we include pre-STEM job history, as shown in the left panel of Figure 8 (noting that it takes time to enter the first STEM job), high school graduates who end up working in STEM at some point spend just under half (47%) of their job history in STEM jobs, a slightly lower rate compared to non-STEM degree holders from bachelor's programs (48%) and lower than associate's and master's program graduates (both 55%). By comparison, STEM graduates spend roughly between 75% of their total employment history in STEM role. This again highlights that even though

Figure 8

Share of time in STEM jobs among those who work in at least one STEM job



there are some pathways into STEM for high school graduates, there remain yet significant obstacles that limit their opportunities.

After reaching their first STEM job (right panel of Figure 8), non-STEM degree workers spend roughly two-thirds of their subsequent job experience in STEM roles, suggesting even for these groups with lower STEM skill penetration and entry rates, there is permanence in STEM. This may be due to breaking into STEM and thus benefiting from the opportunities, expansion of their STEM skills, or other factors. High school graduates spend 68% of their employment history in STEM jobs, 72% for non-STEM associate degrees, 67% for non-STEM bachelor's degrees, and 71% for non-STEM master's degree graduates. By comparison, STEM graduates spend between 83-85% of their employment time in STEM jobs once they have reached their first one.

Conclusion

We examine pathways into STEM jobs for workers with different levels of education attainment. We highlight how workers without STEM degrees move into STEM jobs, including high school graduates.

While not having a STEM degree does not preclude workers from entering into STEM employment, we find that workers who do not have STEM degrees enter the STEM workforce at

a later period, through different types of jobs, with lower STEM skill penetration, and lower STEM retention depending on their degree. High school and associate graduates tend to enter STEM through jobs that are typically described as technician and support roles, such as Electrical Technician, Biomedical Equipment Technician, and Pharmacy Technician. On the other hand, while workers from each educational group have a substantial fraction of jobs with engineering in the title, members with bachelor's degrees and higher are proportionately more likely to have it in their job titles, including such positions as Software Engineer, Mechanical Engineer, or System Engineer.

Moreover, non-STEM graduates tend to move into jobs that utilize fewer STEM skills. For instance, high school graduates typically enter the STEM workforce through jobs where STEM skills comprise 48% of the top skills. While this is higher than the share for non-STEM college degree holders, it is around 70% the magnitude of the share for STEM graduates (0.68 and 0.7 for STEM bachelor's and master's degree graduates, respectively).

The disparity in job titles as well as the gap in STEM skill penetration may set high school and STEM graduates down different paths as they progress in the STEM workforce. In particular, starting off in jobs that expose them to fewer STEM skills may provide high school graduates with fewer opportunities to build additional skills that could help them progress in their career and move into different types of STEM jobs. This may be one of the reasons why they end up with a smaller fraction of time spent in STEM jobs, and lower retention in STEM after their first STEM job compared to STEM college degree holders.

However, further analysis is needed to fully examine the pathways after their first STEM job, including exit from STEM and the reasons for these that may differ across educational attainment.

The different pathways that non-STEM and STEM graduates take to STEM employment may be especially unfortunate since high school graduates' interest in STEM jobs is growing the fastest among all the groups in our study. In 2022, almost two out of every three high school graduates who viewed or applied for any jobs on LinkedIn had at least one of those jobs which was STEM, up from around half of high school graduates in 2020. And they are getting to STEM jobs faster. Between 2013 and 2021, the probability of a high school graduate getting a STEM job within two years of graduation almost tripled, up from 4.2% to 11.3%. And once high school graduates enter the STEM workforce, they tend to stay, spending roughly two-thirds of their subsequent employment history in STEM after getting their first STEM job. Non-STEM graduates are increasingly interested in STEM jobs and are likely to stay in the STEM workforce once they break into it.

While new pathways into STEM jobs for interested high school graduates - as well as non-STEM college graduates - should be explored, existing pathways can continue to be supported. This means continuing to hire workers without STEM degrees for STEM jobs like technical support and pharmacy technician roles, even in slack labor market conditions when more workers with college degrees may be in the hiring pool. It also means strengthening pathways between these technician and support STEM positions and other STEM jobs.

Additionally, skills-first approaches to sourcing talent can help strengthen the pipeline of non-STEM degree workers into STEM. While we find that having STEM skills is associated with getting a STEM job sooner, the benefit is largest for college graduates. A skills-first approach to recruiting and hiring may help narrow this gap by focusing on whether the worker has relevant skills regardless of their educational background.

Strengthening existing pathways into STEM jobs for non-STEM degree holders, as well as finding new ones, can help widen access to STEM jobs, and make the benefits that come with these roles—good earning potential, solid career paths, and expected job growth—available to more workers across the educational spectrum, and in so doing strengthen the STEM workforce talent pool and economy.

References

Anderson, D., Baird, M., & Bozick, R. (2021). Who Gets Counted as STEM? A New Approach for Measuring the STEM Workforce and its Implications for Identifying Gender Disparities in the Labor Market. *International Journal of Gender, Science and Technology*, *13*(3), 254–279.

Baird, M., Bozick, R., & Harris, M. (2017). *Postsecondary Education and STEM Employment in the United States: An Analysis of National Trends with a Focus on the Natural Gas and Oil Industry*. RAND.

Baird, M., Gahlawat, Ni., Hood, R., Ko, P., & Lara, S. (2023). LinkedIn STEM Classification Methodology. *LinkedIn Economic Graph Technical Note*, *1*. https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/linkedin-stem-classification-methodology-egtn01.pdf

Bozick, R., Srinivasan, S., & Gottfried, M. (2017). Do high school STEM courses prepare non-college bound youth for jobs in the STEM economy? *Education Economics*, *25*(3), 234–250. https://doi.org/10.1080/09645292.2016.1234585

Franco, M. S., Patel, N. H., & Lindsey, J. (2012). Are STEM High School Students Entering the STEM Pipeline?. *NCSSSMST Journal*, *17*(1), 14–23.

Melguizo, T., & Wolniak, G. C. (2012). The earnings benefits of majoring in STEM fields among high achieving minority students. *Research in Higher Education*, *53*, 383–405.

Noonan, R. (2017). STEM Jobs: 2017 Update. ESA Issue Brief# 02-17. *US Department of Commerce*.

Acknowledgements

We gratefully acknowledge the feedback and support of many people in this research, including Murat Erer, Chris Grant, Karin Kimbrough, Gorki De Los Santos, Amie Wong, and Brian Xu.

Methodology

Data and Privacy This body of work represents the world seen through LinkedIn data, drawn from the anonymized and aggregated profile information of LinkedIn's one billion members around the world. As such, it is influenced by how members choose to use the platform, which can vary based on professional, social, and regional culture, as well as overall site availability and accessibility.

In publishing these insights from LinkedIn's Economic Graph, we want to provide accurate statistics while ensuring our members' privacy. As a result, all data show aggregated information for the corresponding period following strict data quality thresholds that prevent disclosing any information about specific individuals.

Gender Classification Gender identity isn't binary, and we recognize that some LinkedIn members identify beyond the traditional gender constructs of "man" and "woman." If not explicitly self-identified, we have inferred the gender of members included in this analysis either by the pronouns used on their LinkedIn profiles or inferred on the basis of first name. Members whose gender could not be inferred as either man or woman were excluded from this analysis.

STEM: STEM (Science, Technology, Engineering, and Mathematics) defines a collection of skills and occupations in these connected fields. We define STEM skills as those for which STEM degree graduates are at least five times as likely to list the skill as non-STEM degree holders. We define STEM occupations as those with at least one of their top ten skills as a STEM skill. See Baird, Gahlawat, et al. (2023) for details.

Appendix

Figure A.1

Average fraction of job applications which are for STEM jobs

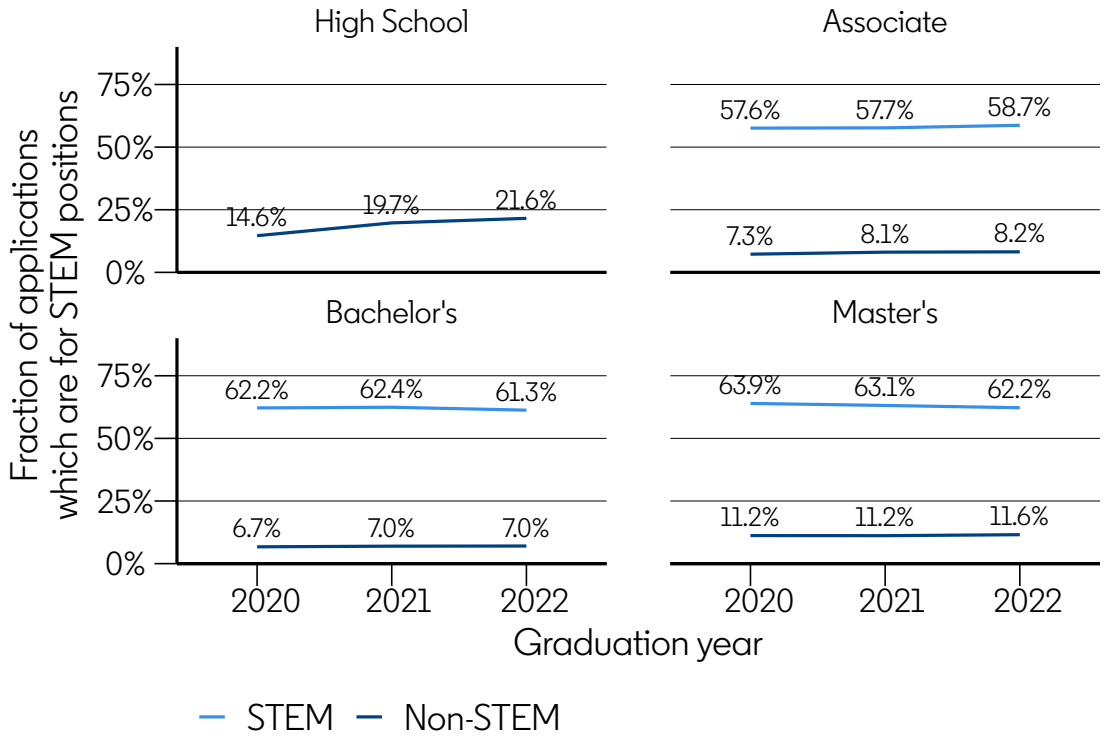


Figure A.2

Growth in share of applications which are for STEM jobs

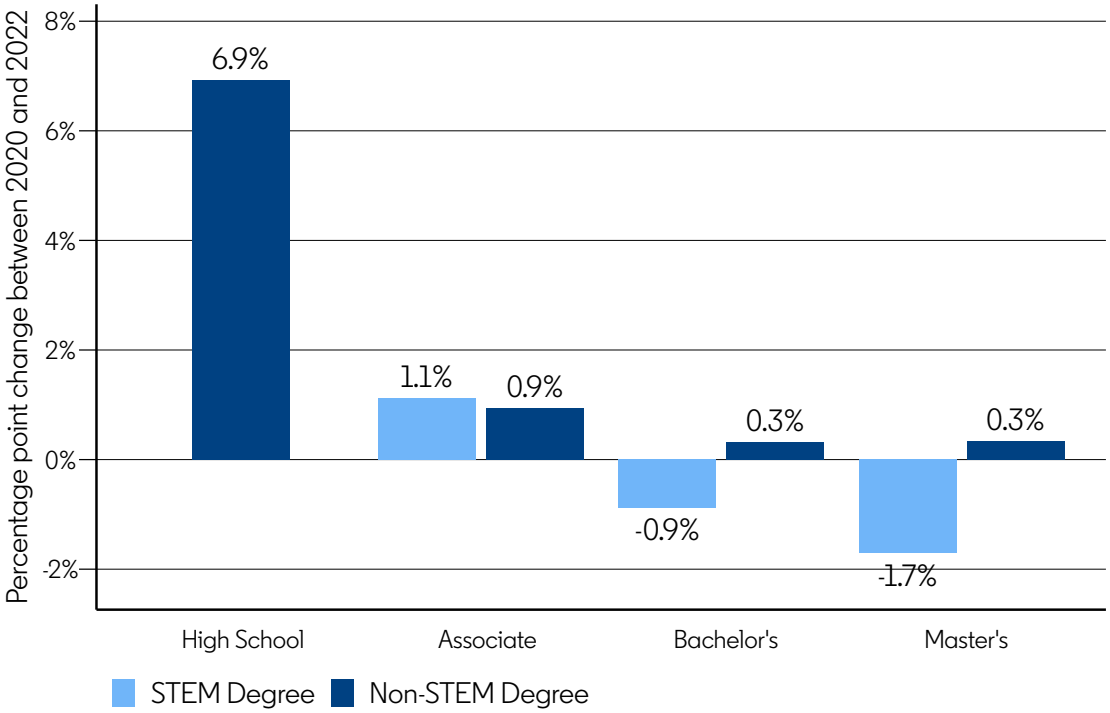


Table A.1

Survival model hazard ratios for education, job search behavior, and skills on STEM employment

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Associate Non-STEM	0.10 *** (0.09 – 0.10)	0.12 *** (0.12 – 0.12)	0.15 *** (0.15 – 0.16)
Associate STEM	0.76 *** (0.75 – 0.77)	0.77 *** (0.76 – 0.79)	0.91 *** (0.89 – 0.93)
Bachelor's Non-STEM	0.11 *** (0.11 – 0.11)	0.12 *** (0.12 – 0.12)	0.15 *** (0.14 – 0.15)
High School	0.16 *** (0.16 – 0.17)	0.23 *** (0.23 – 0.23)	0.25 *** (0.24 – 0.25)
Master's Non-STEM	0.15 *** (0.15 – 0.15)	0.14 *** (0.13 – 0.14)	0.16 *** (0.16 – 0.17)
Master's STEM	1.02 *** (1.01 – 1.02)	0.85 *** (0.84 – 0.86)	0.83 *** (0.82 – 0.85)
Graduation Year		0.98 *** (0.98 – 0.98)	1.02 *** (1.01 – 1.02)
Applied to STEM Job		1.65 *** (1.64 – 1.66)	1.36 *** (1.35 – 1.37)
Viewed STEM Job		1.50 *** (1.49 – 1.51)	1.52 *** (1.51 – 1.53)
STEM Application: Associates Non-STEM		2.00 *** (1.91 – 2.09)	2.20 *** (2.09 – 2.31)
STEM Application: Associates STEM		1.23 *** (1.20 – 1.26)	1.40 *** (1.36 – 1.44)
STEM Application: Bachelors Non-STEM		1.50 *** (1.48 – 1.53)	1.60 *** (1.57 – 1.62)
STEM Application: High School		2.05 *** (1.96 – 2.14)	2.16 *** (2.05 – 2.28)
STEM Application: Masters Non-STEM		1.91 *** (1.88 – 1.94)	1.74 *** (1.71 – 1.77)
STEM Application: Masters STEM		1.26 *** (1.25 – 1.28)	1.13 *** (1.11 – 1.14)
Construction: Bachelors STEM			0.91 *** (0.89 – 0.93)
Construction: Associates Non-STEM			1.03 (0.92 – 1.16)
Construction: Associates STEM			0.81 *** (0.74 – 0.89)
Construction: Bachelors Non-STEM			1.74 *** (1.68 – 1.81)
Construction: High School			0.67 *** (0.53 – 0.84)
Construction: Masters Non-STEM			1.07 ** (1.02 – 1.12)
Construction: Masters STEM			0.89 *** (0.85 – 0.92)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Soft Skills: Bachelors STEM			0.81 *** (0.80 – 0.82)
Soft Skills: Associates Non-STEM			0.74 *** (0.71 – 0.78)
Soft Skills: Associates STEM			0.77 *** (0.75 – 0.80)
Soft Skills: Bachelors Non-STEM			0.77 *** (0.76 – 0.78)
Soft Skills: High School			0.70 *** (0.66 – 0.73)
Soft Skills: Masters Non-STEM			0.80 *** (0.79 – 0.82)
Soft Skills: Masters STEM			0.85 *** (0.84 – 0.86)
Hospitality Management: Bachelors STEM			0.70 *** (0.68 – 0.73)
Hospitality Management: Associates Non-STEM			0.59 *** (0.52 – 0.66)
Hospitality Management: Associates STEM			0.68 *** (0.62 – 0.75)
Hospitality Management: Bachelors Non-STEM			0.69 *** (0.65 – 0.73)
Hospitality Management: High School			0.48 *** (0.41 – 0.57)
Hospitality Management: Masters Non-STEM			0.73 *** (0.68 – 0.79)
Hospitality Management: Masters STEM			0.74 *** (0.70 – 0.79)
STEM skills X Bachelors STEM			2.20 *** (2.19 – 2.22)
STEM skills X Associates Non-STEM			3.02 *** (2.85 – 3.20)
STEM skills X Associates STEM			1.38 *** (1.33 – 1.42)
STEM skills X Bachelors Non-STEM			3.28 *** (3.23 – 3.34)
STEM skills X High School			2.11 *** (2.00 – 2.24)
STEM skills X Masters Non-STEM			3.84 *** (3.77 – 3.92)
STEM skills X Masters STEM			2.40 *** (2.37 – 2.44)
Business: Bachelors STEM			0.80 *** (0.79 – 0.81)
Business: Associates Non-STEM			0.78 *** (0.74 – 0.82)
Business: Associates STEM			0.78 *** (0.75 – 0.80)
Business: Bachelors Non-STEM			0.79 *** (0.78 – 0.81)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Business: High School			0.69 *** (0.65 – 0.72)
Business: Masters Non-STEM			0.80 *** (0.79 – 0.82)
Business: Masters STEM			0.81 *** (0.80 – 0.82)
Professional Services: Bachelors STEM			0.83 *** (0.83 – 0.84)
Professional Services: Associates Non-STEM			0.73 *** (0.69 – 0.77)
Professional Services: Associates STEM			0.78 *** (0.76 – 0.81)
Professional Services: Bachelors Non-STEM			0.79 *** (0.77 – 0.80)
Professional Services: High School			0.91 ** (0.85 – 0.96)
Professional Services: Masters Non-STEM			0.79 *** (0.78 – 0.80)
Professional Services: Masters STEM			0.81 *** (0.80 – 0.82)
Digital Literacy: Bachelors STEM			0.88 *** (0.87 – 0.89)
Digital Literacy: Associates Non-STEM			1.06 * (1.01 – 1.11)
Digital Literacy: Associates STEM			1.04 * (1.01 – 1.07)
Digital Literacy: Bachelors Non-STEM			1.03 *** (1.01 – 1.05)
Digital Literacy: High School			1.02 (0.96 – 1.08)
Digital Literacy: Masters Non-STEM			0.97 *** (0.95 – 0.99)
Digital Literacy: Masters STEM			0.94 *** (0.93 – 0.95)
Engineering: Bachelors STEM			1.09 *** (1.08 – 1.09)
Engineering: Associates Non-STEM			1.18 *** (1.11 – 1.25)
Engineering: Associates STEM			1.17 *** (1.13 – 1.20)
Engineering: Bachelors Non-STEM			1.27 *** (1.25 – 1.29)
Engineering: High School			1.19 *** (1.12 – 1.27)
Engineering: Masters Non-STEM			1.20 *** (1.17 – 1.22)
Engineering: Masters STEM			1.12 *** (1.11 – 1.13)
Education: Bachelors STEM			0.75 *** (0.74 – 0.77)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Education: Associates Non-STEM			0.81 ** (0.71 – 0.92)
Education: Associates STEM			0.74 *** (0.66 – 0.83)
Education: Bachelors Non-STEM			0.82 *** (0.79 – 0.84)
Education: High School			0.90 (0.79 – 1.02)
Education: Masters Non-STEM			0.79 *** (0.76 – 0.81)
Education: Masters STEM			0.64 *** (0.63 – 0.66)
Finance: Bachelors STEM			0.57 *** (0.55 – 0.58)
Finance: Associates Non-STEM			0.73 *** (0.66 – 0.81)
Finance: Associates STEM			0.79 *** (0.72 – 0.86)
Finance: Bachelors Non-STEM			0.68 *** (0.66 – 0.70)
Finance: High School			0.64 *** (0.53 – 0.77)
Finance: Masters Non-STEM			0.62 *** (0.60 – 0.64)
Finance: Masters STEM			0.70 *** (0.68 – 0.72)
Healthcare: Bachelors STEM			0.50 *** (0.49 – 0.51)
Healthcare: Associates Non-STEM			0.50 *** (0.46 – 0.54)
Healthcare: Associates STEM			0.67 *** (0.63 – 0.72)
Healthcare: Bachelors Non-STEM			0.63 *** (0.61 – 0.65)
Healthcare: High School			0.66 *** (0.58 – 0.75)
Healthcare: Masters Non-STEM			0.66 *** (0.64 – 0.68)
Healthcare: Masters STEM			0.61 *** (0.59 – 0.62)
Mathematics: Bachelors STEM			0.97 *** (0.95 – 0.99)
Mathematics: Associates Non-STEM			1.07 (0.84 – 1.35)
Mathematics: Associates STEM			0.70 *** (0.62 – 0.80)
Mathematics: Bachelors Non-STEM			1.07 (1.00 – 1.14)
Mathematics: High School			1.12 (0.98 – 1.29)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Mathematics: Masters Non-STEM			1.20 *** (1.12 – 1.28)
Mathematics: Masters STEM			1.04 * (1.01 – 1.08)
Art: Bachelors STEM			0.83 *** (0.81 – 0.84)
Art: Associates Non-STEM			0.80 *** (0.73 – 0.89)
Art: Associates STEM			0.65 *** (0.60 – 0.70)
Art: Bachelors Non-STEM			0.73 *** (0.71 – 0.75)
Art: High School			0.82 ** (0.73 – 0.93)
Art: Masters Non-STEM			0.72 *** (0.69 – 0.75)
Art: Masters STEM			0.83 *** (0.81 – 0.86)
Military: Bachelors STEM			1.01 (0.98 – 1.03)
Military: Associates Non-STEM			1.29 *** (1.16 – 1.44)
Military: Associates STEM			0.98 (0.91 – 1.05)
Military: Bachelors Non-STEM			1.36 *** (1.29 – 1.42)
Military: High School			1.13 (0.83 – 1.55)
Military: Masters Non-STEM			1.19 *** (1.13 – 1.24)
Military: Masters STEM			0.92 *** (0.89 – 0.96)
Consulting: Bachelors STEM			0.67 *** (0.66 – 0.69)
Consulting: Associates Non-STEM			0.80 *** (0.72 – 0.89)
Consulting: Associates STEM			0.73 *** (0.66 – 0.80)
Consulting: Bachelors Non-STEM			0.81 *** (0.78 – 0.83)
Consulting: High School			0.74 ** (0.61 – 0.90)
Consulting: Masters Non-STEM			0.74 *** (0.72 – 0.77)
Consulting: Masters STEM			0.65 *** (0.64 – 0.67)
Media Communications: Bachelors STEM			0.77 *** (0.76 – 0.78)
Media Communications: Associates Non-STEM			0.92 * (0.85 – 0.98)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Media Communications: Associates STEM			0.93 ** (0.89 – 0.98)
Media Communications: Bachelors Non-STEM			0.71 *** (0.70 – 0.73)
Media Communications: High School			0.78 *** (0.72 – 0.86)
Media Communications: Masters Non-STEM			0.78 *** (0.76 – 0.80)
Media Communications: Masters STEM			0.81 *** (0.80 – 0.83)
Natural Sciences: Bachelors STEM			0.78 *** (0.76 – 0.79)
Natural Sciences: Associates Non-STEM			0.81 (0.62 – 1.05)
Natural Sciences: Associates STEM			0.97 (0.84 – 1.13)
Natural Sciences: Bachelors Non-STEM			1.18 *** (1.11 – 1.27)
Natural Sciences: High School			0.99 (0.73 – 1.33)
Natural Sciences: Masters Non-STEM			1.07 * (1.01 – 1.12)
Natural Sciences: Masters STEM			0.89 *** (0.86 – 0.91)
Public Administration: Bachelors STEM			0.80 *** (0.78 – 0.81)
Public Administration: Associates Non-STEM			0.92 (0.83 – 1.02)
Public Administration: Associates STEM			0.80 *** (0.74 – 0.86)
Public Administration: Bachelors Non-STEM			0.84 *** (0.81 – 0.87)
Public Administration: High School			0.88 (0.74 – 1.05)
Public Administration: Masters Non-STEM			0.83 *** (0.81 – 0.86)
Public Administration: Masters STEM			0.74 *** (0.72 – 0.76)
Manufacturing: Bachelors STEM			0.97 *** (0.96 – 0.99)
Manufacturing: Associates Non-STEM			0.89 ** (0.83 – 0.96)
Manufacturing: Associates STEM			0.80 *** (0.76 – 0.84)
Manufacturing: Bachelors Non-STEM			0.85 *** (0.83 – 0.88)
Manufacturing: High School			0.80 *** (0.71 – 0.89)
Manufacturing: Masters Non-STEM			0.96 ** (0.94 – 0.98)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Manufacturing: Masters STEM			0.88 *** (0.87 – 0.90)
Sports: Bachelors STEM			0.89 *** (0.86 – 0.92)
Sports: Associates Non-STEM			0.77 * (0.61 – 0.97)
Sports: Associates STEM			0.94 (0.79 – 1.11)
Sports: Bachelors Non-STEM			0.83 *** (0.79 – 0.88)
Sports: High School			0.89 (0.77 – 1.04)
Sports: Masters Non-STEM			0.76 *** (0.71 – 0.81)
Sports: Masters STEM			0.91 *** (0.86 – 0.96)
Social Sciences: Bachelors STEM			0.48 *** (0.47 – 0.49)
Social Sciences: Associates Non-STEM			0.79 ** (0.68 – 0.91)
Social Sciences: Associates STEM			0.68 *** (0.59 – 0.79)
Social Sciences: Bachelors Non-STEM			0.84 *** (0.81 – 0.87)
Social Sciences: High School			0.97 (0.84 – 1.13)
Social Sciences: Masters Non-STEM			0.81 *** (0.79 – 0.83)
Social Sciences: Masters STEM			0.55 *** (0.54 – 0.56)
Entertainment: Bachelors STEM			0.89 *** (0.87 – 0.91)
Entertainment: Associates Non-STEM			0.89 (0.79 – 1.01)
Entertainment: Associates STEM			0.74 *** (0.67 – 0.82)
Entertainment: Bachelors Non-STEM			0.90 *** (0.86 – 0.93)
Entertainment: High School			1.03 (0.91 – 1.15)
Entertainment: Masters Non-STEM			0.90 *** (0.85 – 0.94)
Entertainment: Masters STEM			0.92 *** (0.89 – 0.96)
Utilities: Bachelors STEM			0.91 *** (0.86 – 0.96)
Utilities: Associates Non-STEM			0.83 (0.66 – 1.04)
Utilities: Associates STEM			0.50 *** (0.44 – 0.57)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Utilities: Bachelors Non-STEM			0.89 (0.78 – 1.02)
Utilities: High School			0.59 (0.31 – 1.09)
Utilities: Masters Non-STEM			1.00 (0.91 – 1.10)
Utilities: Masters STEM			0.88 *** (0.83 – 0.93)
Real Estate: Bachelors STEM			0.49 *** (0.46 – 0.53)
Real Estate: Associates Non-STEM			0.60 *** (0.49 – 0.73)
Real Estate: Associates STEM			0.60 *** (0.49 – 0.74)
Real Estate: Bachelors Non-STEM			0.57 *** (0.53 – 0.61)
Real Estate: High School			0.49 ** (0.32 – 0.77)
Real Estate: Masters Non-STEM			0.57 *** (0.52 – 0.62)
Real Estate: Masters STEM			0.58 *** (0.53 – 0.65)
Information Science: Bachelors STEM			1.00 (0.98 – 1.01)
Information Science: Associates Non-STEM			1.11 (0.99 – 1.24)
Information Science: Associates STEM			1.06 (0.99 – 1.14)
Information Science: Bachelors Non-STEM			1.03 (1.00 – 1.07)
Information Science: High School			1.01 (0.81 – 1.26)
Information Science: Masters Non-STEM			0.95 ** (0.92 – 0.99)
Information Science: Masters STEM			0.90 *** (0.88 – 0.92)
Transportation: Bachelors STEM			0.68 *** (0.65 – 0.71)
Transportation: Associates Non-STEM			0.88 * (0.79 – 0.99)
Transportation: Associates STEM			0.61 *** (0.56 – 0.67)
Transportation: Bachelors Non-STEM			0.76 *** (0.71 – 0.81)
Transportation: High School			0.58 *** (0.44 – 0.76)
Transportation: Masters Non-STEM			0.68 *** (0.63 – 0.74)
Transportation: Masters STEM			0.72 *** (0.68 – 0.77)

	Unadjusted (M1)	Job Search Behavior (M2)	Job search + Pre-STEM Skills (M3)
Agriculture: Bachelors STEM			0.59 *** (0.56 – 0.61)
Agriculture: Associates Non-STEM			0.94 (0.73 – 1.21)
Agriculture: Associates STEM			0.75 ** (0.62 – 0.91)
Agriculture: Bachelors Non-STEM			0.99 (0.90 – 1.10)
Agriculture: High School			0.79 (0.57 – 1.09)
Agriculture: Masters Non-STEM			0.99 (0.88 – 1.11)
Agriculture: Masters STEM			0.63 *** (0.59 – 0.67)
Mining: Bachelors STEM			0.82 *** (0.76 – 0.87)
Mining: Associates Non-STEM			0.78 (0.58 – 1.05)
Mining: Associates STEM			0.64 *** (0.52 – 0.79)
Mining: Bachelors Non-STEM			0.89 (0.76 – 1.03)
Mining: High School			0.13 * (0.02 – 0.90)
Mining: Masters Non-STEM			0.73 *** (0.65 – 0.81)
Mining: Masters STEM			0.79 *** (0.74 – 0.85)
Observations	3144237	3144237	3144237
R2 Nagelkerke	0.199	0.236	0.291

** p<0.05 ** p<0.01 *** p<0.001*

Table A.2

Most common descriptors in first STEM job title

Education Group	Rank				
	1st	2nd	3rd	4th	5th
High school	Technician (7.3%)	Specialist (7.1%)	Engineer (5.1%)	Support (4.6%)	Information (4.5%)
Non-STEM Associate	Technician (7.5%)	Specialist (5.7%)	Support (5.6%)	Analyst (4.2%)	Quality (4.0%)
STEM Associate	Technician (9.0%)	Engineer (7.2%)	Support (7.1%)	Technical (6.7%)	Information (5.8%)
Non-STEM Bachelor's	Analyst (8.6%)	Specialist (5.7%)	Engineer (5.0%)	Support (4.2%)	Information (4.1%)
STEM Bachelor's	Engineer (19.8%)	Software (9.1%)	Analyst (4.3%)	Specialist (4.1%)	Information (2.6%)
Non-STEM Master's	Engineer (6.9%)	Analyst (6.7%)	Manager (4.4%)	Information (3.9%)	Specialist (3.7%)
STEM Master's	Engineer (20.9%)	Software (10.7%)	Analyst (4.3%)	Data (3.4%)	Specialist (3.2%)

Note: Percent of job titles with that text descriptor given in parentheses