Expanding Registered Apprenticeship Opportunities to Underrepresented Populations: Findings from the American Apprenticeship Initiative Evaluation

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Overview of Findings and Areas for Further Inquiry

Key Findings

- **More than half of American Apprenticeship Initiative (AAI) apprentices were from underrepresented populations—that is, women and people of color.** Fifty-four (54) percent of AAI registered apprentices were women or people of color (Black, Hispanic, or Other Races, including Asian), 15 percentage points more than all registered apprentices (39 percent). Relative to all registered apprentices, a larger share of AAI apprentices were women and Black.
- **About three-quarters of AAI apprentices from underrepresented populations participated in nontraditional registered apprenticeship occupations—that is, occupations not affiliated with the construction industry.** Manufacturing was the most common apprenticeship occupation for Black apprentices (45 percent) and Other Race apprentices (33 percent), whereas most women entered healthcare apprenticeships (52 percent). Construction was the most common occupation for Hispanic apprentices (41 percent).
- **Most women, Black, Hispanic, and Other Race AAI apprentices completed their apprenticeship or were still enrolled in their program.** At the time of the AAI Apprentice Survey (completed on average about 2.7 years after respondents started their apprenticeships), about 80 percent of respondents from underrepresented populations completed (about 50 percent) or were still enrolled in their programs (about 30 percent). A larger share of women completed their programs than men, reflecting, in part, that healthcare apprenticeships are shorter than manufacturing ones. There was little difference among other subgroups. About 20 percent of apprentices from

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underrepresented populations left their programs before completing or had their apprenticeship cancelled by the employer, which is similar to the share of all AAI apprentices. Among those who left before completing, a larger share of apprentices from underrepresented populations than all AAI apprentices cited family or personal reasons as the cause.

- **After completing their registered apprenticeship, most women, Black, Hispanic, and Other Race apprentices remained with the employer who trained them.** A greater proportion of women (67 percent), Other Race (71 percent), and Hispanic apprentices (65 percent) continued working for their apprenticeship employer than did Black apprentices (54 percent).
- **Women, Black, Hispanic, and Other Race apprentices experienced rapid earnings growth over the course of their apprenticeship.** Compared to White men, apprentices from underrepresented populations had lower earnings prior to starting their apprenticeship. However, annual earnings grew by about 65 percent for women (from about $30,000 to $49,000) compared to 43 percent for men (from about $39,000 to $55,000). Earnings growth was highest for Other Race apprentices (from about $32,000 to $60,000, or 86 percent), followed by Hispanic apprentices (from about $35,000 to $52,000, or 50 percent), and Black apprentices (from about $34,000 to $46,000, or 37 percent). White apprentices experienced earnings growth of 45 percent (from about $37,000 to $54,000). Earnings growth is associated with several factors, including earnings prior to apprenticeship, occupation, and whether the apprentice was a new or incumbent worker.
- **Most of the difference in earnings growth between Black and White apprentices occurs among women.** A larger share of Black women apprentices than White women apprentices enrolled in healthcare occupations with lower earnings levels and lower growth. Earnings for White women apprentices grew by nearly $22,000 (a 74 percent increase from pre-program earnings), whereas earnings for Black women apprentices grew by about $13,000 (a 48 percent increase). These racial disparities in wage growth largely reflect enrollment in different types of healthcare occupations.

Areas for Future Inquiry

- Registered apprenticeship programs might consider whether additional supportive services could help apprentices to persist and complete their programs—particularly for women, Black apprentices, and Hispanic apprentices, who were most likely to leave their programs due to personal or family problems.
- Although most apprentices remained with the same employer after program exit, programs might explore how to improve retention for Black apprentices, who were least likely to remain employed with the same employer.
- Future programs might consider ways to promote entry into and completion of apprenticeships in higher-growth occupations by underrepresented populations, and future research might explore underlying reasons for differences in occupations between groups.

Introduction

Apprenticeships are structured work-based training programs that combine classroom instruction ("related technical instruction," or RTI) with on-the-job learning (OJL) provided by a mentor at the employer's worksite. Apprenticeships provide training in a specific occupation and deliver occupational skills that are recognized and transferable across employers. Apprentices are employed during their training, contribute to production, and earn progressively higher wages.[1]

Commonly used as a workforce development strategy in other countries, registered apprenticeships in the U.S. have typically been used as a training model for occupations in the building trades (e.g., electrician, carpenter) (Lerman 2016). Reflecting this composition of apprenticeship programs, White[2] men have accounted for most apprentices in the United States.[3]

The U.S. Department of Labor (DOL)'s American Apprenticeship Initiative (AAI) focused on expanding apprenticeship, particularly those that it (or a state) "registers" as meeting specific standards, into sectors with few apprenticeships (such as healthcare, manufacturing, and information technology) and to populations traditionally underrepresented in apprenticeship.[4] Funded by the H-1B visa program,[5] AAI awarded $175 million in five-year grants to 46 grantees in 2015.[6]

To build evidence about the effectiveness of registered apprenticeship for apprentices and employers, DOL commissioned an evaluation of the AAI grants in 2016, which included four sub-studies.[7]

1 See factsheet at https://www.apprenticeship.gov/sites/default/files/Apprenticeship_Fact_Sheet.pdf.

2 In this brief, "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race; and "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

3 According to data from the Registered Apprenticeship Partners Information Data System (RAPIDS), about 90 percent of all U.S. apprentices registered in States reporting to RAPIDS are men, and more than 60 percent are non-Hispanic White. About 65 percent of apprenticeships are in construction occupations. In this brief, construction occupations are considered "traditional" occupations, while others are considered "nontraditional" occupations. Data available at https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020.

4 See the AAI Funding Opportunity Announcement (FOA) at https://www.doleta.gov/Grants/pdf/FOA-ETA-15-02.pdf. The FOA stated that grantees should seek to increase apprenticeship opportunities for women, people of color, people with disabilities, and veterans, including transitioning service members.

5 The H-1B visa program allows qualified nonimmigrant workers to temporarily work in the U.S. when employers cannot otherwise obtain needed business skills and abilities from the U.S. workforce (https://www.dol.gov/whd/immigration/h1b.htm). The FOA for AAI indicated that industries and occupations proposed by grantees should be those where H-1B visas were being used by employers or that were otherwise high-growth industries. See DOL/ETA 2014.

6 One grant ended prior to the start of data collection for the evaluation. This brief presents findings for 45 grantees.

7 This brief uses data collected for the AAI outcomes study. The other sub-studies are an implementation study, an employer return-on-investment study, and an assessment of a demonstration to encourage employers to adopt apprenticeship. Additionally, several issue briefs, including this brief, are associated with these studies under the AAI Evaluation. Abt Associates and its partners, including The Urban Institute, are conducting the evaluation. Reports and briefs are available to the public on the Employment and Training Administration (ETA) Publication Database (https://wdr.doleta.gov/research/search.cfm) and Chief Evaluation Office (CEO) Completed Reports page (https://www.dol.gov/agencies/oasp/evaluation/completedstudies).

This brief examines the recruitment, program experiences, and post-program employment and earnings outcomes of AAI apprentices from underrepresented populations—defined as *women and people of color (Black, Hispanic, and Other Races, specifically Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races)*—relative to all AAI apprentices and historically represented populations—defined as *White men.*[8]

This brief combines data from a number of sources, including DOL program data, surveys of participants and grantees, and administrative earnings data (Box 1). This unique combination of data provides an unprecedented opportunity to study the in-program experiences and outcomes of specific apprentices from underrepresented populations.

Several factors should be considered in interpreting the findings in this brief. First, the outcomes study measures participant-level outcomes, not AAI apprenticeship programs' causal impact. That is, changes in employment and earnings cannot be attributed solely to the apprenticeship program. To do so would require a different study methodology. Second, the earnings analysis includes only apprentices whose programs ended by September 2019, so that earnings are observed in the fifth post-program quarter. As such, it excludes longer-term programs in which apprentices were still enrolled. Thus, the earnings results largely reflect apprentices who completed short- and medium-term apprenticeship programs.

The brief examines four research questions:

1. What are the characteristics of AAI apprentices? How do they compare to all registered apprentices?
2. How did AAI apprentices, including those from underrepresented populations, learn about apprenticeship? What were their motivations for and concerns prior to starting the program?

Box 1: Data Sources

- An **Apprentice Survey** administered to a subset of AAI apprentices between March and October 2020. The survey collected information about respondents' background prior to starting their apprenticeship, program experiences, skills and knowledge gained, credential receipt, program completion, and post-program labor market outcomes. A total of 2,601 apprentices who were registered by December 2018 responded to the survey. On average, apprentices completed the survey about 2.7 years after starting their apprenticeship.
- **Apprenticeship Quarterly Performance Report (QPR)** data provided by grantees to DOL through December 31, 2020. The data describe the characteristics and occupations of AAI apprentices.
- A **Grantee Survey** administered to AAI grantees in June and July 2019. All 45 grantees participating in the AAI evaluation responded. The survey collected information on grantee characteristics, occupational fields where the grantee is active, and individual employers and other sponsors associated with the grant.
- Quarterly earnings data spanning two years prior to apprentice registration through December 2020 from the **National Directory of New Hires (NDNH)**, a database operated by the Office of Child Support Enforcement within the Administration for Children and Families, U.S. Department of Health and Human Services. Post-program data are available for 3,871 apprentices.
- Data from DOL's **Registered Apprenticeship Partners Information Data System (RAPIDS)**, which contains data on registered apprentices in 25 states with federally administered registered apprenticeship programs and 18 states with federally recognized State Apprenticeship Agencies. Kuehn (2019) estimates that RAPIDS data covers approximately three-quarters of registered apprenticeships.

8 This brief focuses on women and people of color. The first AAI implementation study report (Gardiner et al. 2021) and outcomes study final report (Walton et al. (2022)) examine outcomes for all underrepresented populations.

3. What were AAI apprentices' program experiences? How did the experiences of underrepresented populations compare to historically represented populations?

4. How do the post-program outcomes of AAI apprentices from underrepresented populations compare to those of historically represented populations?

After providing a short overview of registered apprenticeship, the brief addresses each of the research questions in turn. The Appendix contains additional tables with expanded results of the analyses reported in the text.

Overview of Registered Apprenticeship

AAI provided financial support to grantees to expand apprenticeships that are registered either with DOL's Office of Apprenticeship or with a federally recognized State Apprenticeship Agency. A registered apprenticeship adheres to guidelines around the length of RTI and OJL. A sponsor is responsible for the program and maintains the *Standards of Apprenticeship*, which documents the RTI, OJL, and other aspects of the apprenticeship. Apprenticeship completers receive an industry-recognized credential (see Box 2).

For the registered apprenticeship system as a whole, occupations within the construction trades continued to account for most registered apprenticeships. In Fiscal Year 2019, the combination of electrician, carpenter, and construction craft laborer apprentices accounted for more than 40 percent of all active apprentices.[9]

The high share of men (91 percent) in registered apprenticeships reflects in part the prevalence of construction-related occupations. The demographics of apprentices largely mirrors the U.S. adult population: 63 percent of apprentices are White, 22 percent are Hispanic (any race), 11 percent are Black, and 2 percent are Asian.[10]

Box 2: Elements of Registered Apprenticeship

- **Approval** by DOL's Office of Apprenticeship or a State Apprenticeship Agency (SAA), or sometimes both
- **Related technical instruction** (RTI) of at least 144 hours in a physical or virtual classroom
- **On-the-job learning** (OJL) of at least 2,000 hours overseen by a mentor at the employer site
- **Wage increases** over the course of the apprenticeship (wage progression), which can be tied to time in the program or to demonstration of skill competency
- An **industry-recognized credential** upon completion of the apprenticeship
- A ***Standards of Apprenticeship*** document that formally describes the work process schedule (skill standards) and specifies the RTI, OJL, and wage progression for the registered apprenticeship program
- A **sponsor** to oversee the program and maintain the *Standards of Apprenticeship* and basic data on apprentices; sponsors can be employers, consortia of employers, unions, community colleges, State or local workforce agencies, or nonprofits
- A **written apprenticeship agreement** between an apprentice and either the program sponsor or an apprenticeship committee acting as an agent for the sponsor

Source: Gardiner et al. (2021)

9 Source: https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2019. These data cover apprenticeship programs that report data to the federal Office of Apprenticeship rather than to the State Apprenticeship Agencies. Kuehn (2019) estimates that these federal apprenticeship data cover about 73 percent of the apprentice population.

10 Source: https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2019.

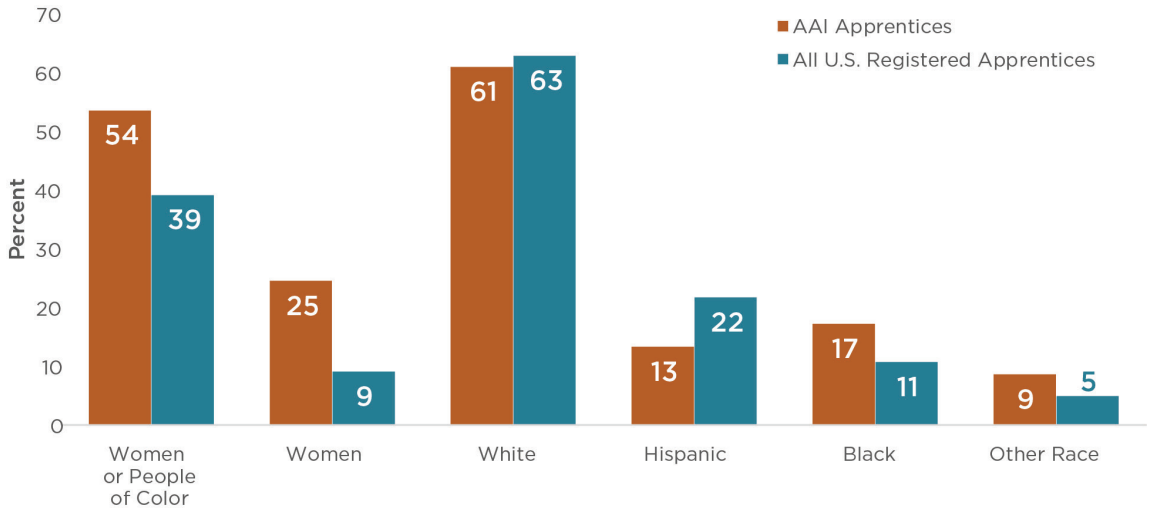
What Are the Characteristics of AAI Apprentices?

Whether AAI grantees succeeded in recruiting women and people of color is one of the primary topics studied by the evaluation. This section describes the characteristics of AAI apprentices and how they differ from those of all registered apprentices, based on data from the AAI Apprentice Survey and DOL program records.

- **A larger share of AAI apprentices are women and people of color compared to all U.S. registered apprentices.**

  Nearly 54 percent of AAI apprentices were women or people of color, compared to 39 percent of all registered apprenticeships (Exhibit 1 and Appendix Exhibit 1). Compared to all registered apprentices, AAI has a larger share of women (25 percent vs. 9 percent) and Black apprentices (17 percent vs. 11 percent).[11] However, AAI has a smaller share of Hispanic apprentices (13 percent vs. 22 percent).[12] As shown later in this brief, relative to other underrepresented groups, more Hispanic apprentices enroll in construction occupations. Thus, the emphasis of AAI on non-construction occupations contributes to the reduced share of Hispanic apprentices.

Exhibit 1. Characteristics of AAI Apprentices versus All U.S. Registered Apprentices



Sources: AAI Apprentice Survey and QPR (N=2,601); RAPIDS (N=220,556). RAPIDS sample comprises apprentices registered between 2015 and 2018 who were still enrolled in 2020.

Notes: Survey means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian (4.5 percent), Native Hawaiian or Pacific Islander (0.7 percent), Native American (1.7 percent), or multiple races (1.7 percent). The Other Race group has too few observations to disaggregate further.

11 The characteristics of all apprentices nationally is based on RAPIDS data on all U.S. apprentices registered in States reporting to RAPIDS. See Appendix Exhibit 2 for additional details. Publicly accessible RAPIDS data are available at https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020.

12 Differences reported in this brief were not formally tested for statistical significance.

- **Compared to White men, AAI apprentices from underrepresented populations had lower earnings prior to starting their apprenticeship.**

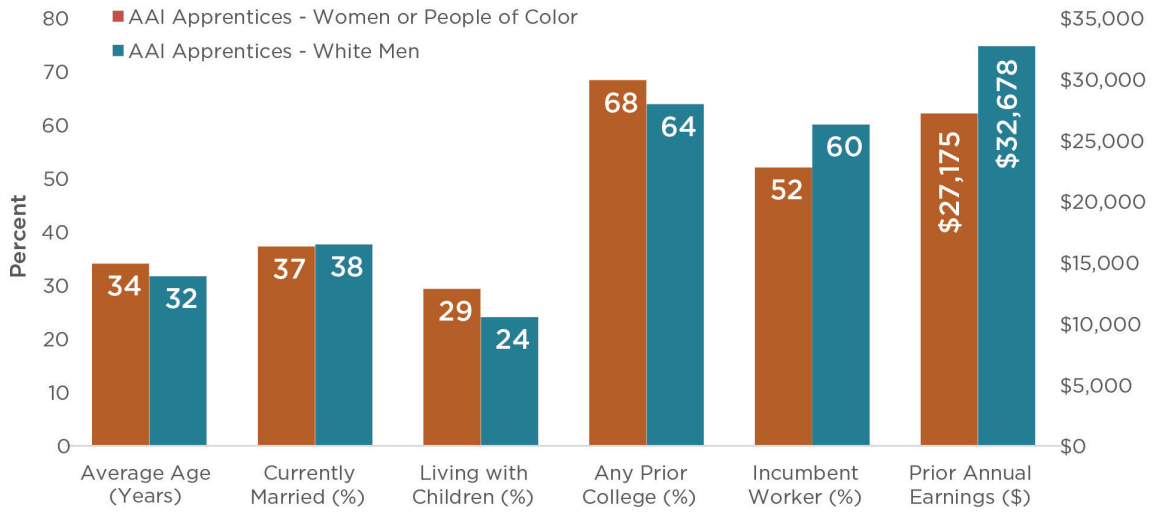
  Exhibit 2 shows selected characteristics of apprentices from underrepresented populations in reference to White men. Compared to White men, apprentices from underrepresented populations had lower earnings in the year prior to starting their apprenticeship ($27,175 vs. $32,678). One potential factor is that fewer apprentices from underrepresented populations were incumbent workers (52 percent vs. 60 percent); as shown later in this brief, incumbent workers had higher earnings than new workers before starting their apprenticeship.

  A larger share of apprentices from underrepresented populations lived with children (29 percent vs. 24 percent) and had prior college experience (68 percent vs. 64 percent). However, differences were minimal in age and marital status: about 38 percent were married, and apprentices were 33 years old on average when they started their programs.

  Appendix Exhibits 3 and 4 report these characteristics by gender and for different racial and ethnic groups. Compared to men, women were older on average (37 years vs. 31 years). A larger share of women than men lived with children (36 percent vs. 23 percent) and had prior college experience (81 percent vs. 61 percent). On average, women had lower earnings in the year prior to starting their apprenticeship than did men ($26,503 vs. $32,479).

  Hispanic apprentices were younger than average (29 years), fewer had prior college experience (51 percent), and they had lower earnings in the year prior to starting their apprenticeship ($24,826) than the other racial/ethnic groups. More White apprentices were incumbent workers (63 percent) and had the highest prior apprenticeship earnings ($34,124) of any racial/ethnic group.

Exhibit 2. Selected Characteristics of AAI Apprentices, Underrepresented Populations versus White Men



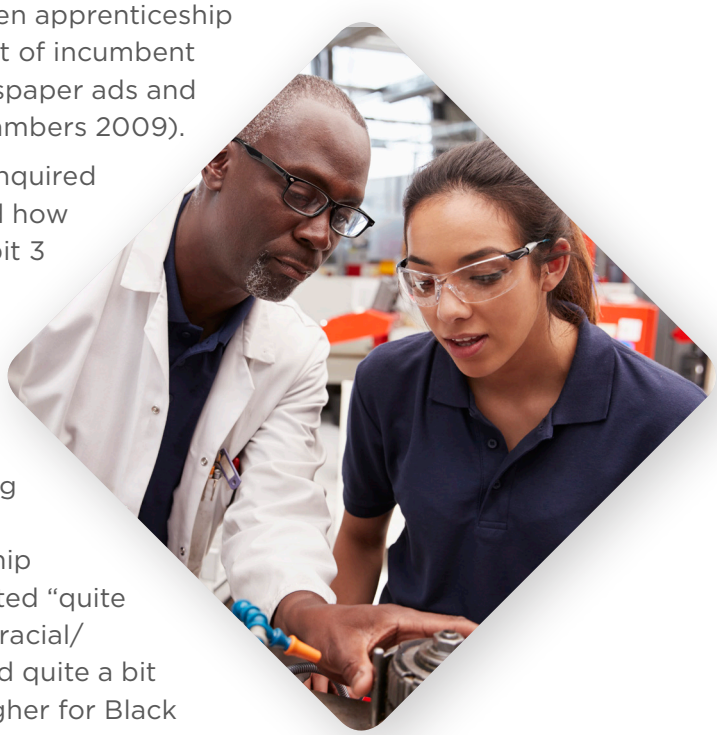
Sources: AAI Apprentice Survey and QPR. N=2,601.

Notes: Survey means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

How Did AAI Apprentices from Underrepresented Populations Learn About Apprenticeship?

This section examines underrepresented populations' prior knowledge of apprenticeship and how they learned about the AAI apprenticeship opportunity.

As reported in the first implementation study report (Gardiner et al. 2021), most AAI grantees (84 percent) reported they targeted specific populations for their apprenticeship programs, with women and veterans the most common target populations (42 percent of grantees for each), followed by people of color (38 percent of grantees), according to the AAI Grantee Survey. Employers were the most common recruitment partner, participating in recruitment, screening, and intake activities for 83 percent of apprenticeship programs. The Grantee Survey did not collect details regarding how employers identify and screen apprenticeship applicants. However, earlier studies found that recruitment of incumbent workers was the most common method, followed by newspaper ads and word of mouth (Kuehn et al. 2011; Lerman, Eyster, and Chambers 2009).



For the AAI outcomes study, the AAI Apprentice Survey inquired about apprentices' prior knowledge of apprenticeship and how they learned of the AAI apprenticeship opportunity. Exhibit 3 and Appendix Exhibit 5 summarize survey findings.

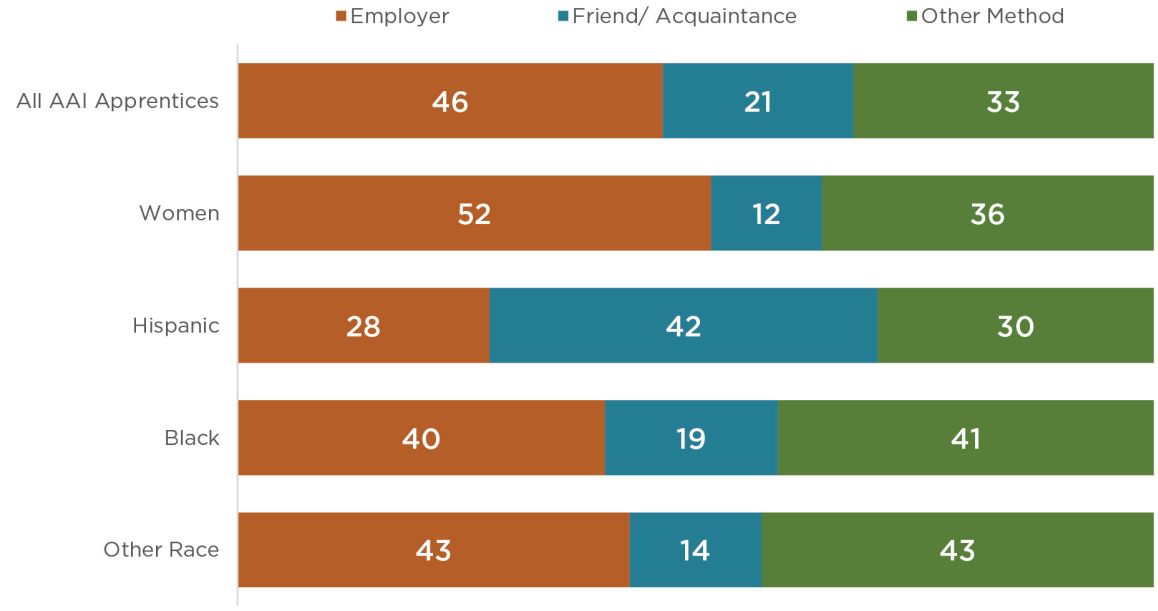
- **Few AAI apprentices from underrepresented populations had prior knowledge of apprenticeship.**

  The survey asked AAI apprentices to respond about their level of apprenticeship knowledge prior to entering their programs. Overall, 16 percent of AAI apprentices reported "quite a bit" of knowledge about apprenticeship (Appendix Exhibit 5). Fewer women (12 percent) reported "quite a bit" of knowledge than did men (17 percent). Among racial/ethnic groups, 16 percent of White apprentices reported quite a bit of knowledge of apprenticeship; the proportion was higher for Black apprentices (19 percent) and lower for Hispanic apprentices (11 percent).

- **AAI apprentices from underrepresented populations generally learned about the apprenticeship opportunity through their employers or friends and acquaintances.**

  Consistent with earlier studies cited above, the most common way apprentices learned about the opportunity was through their *employer at the time* (46 percent), which in part reflects the large number of incumbent workers (57 percent of all AAI apprentices) in the survey sample (Exhibit 3 and Appendix Exhibit 5). Still, the proportion varied considerably by gender and race/ethnicity; 52 percent of women reported this method, compared to 43 percent of Other Race and 40 percent of Black apprentices. This method was least common for Hispanic apprentices (28 percent). The second most common source of information about apprenticeship overall was a *friend or acquaintance* (21 percent). A friend or acquaintance was the most common method, however, for Hispanic apprentices (42 percent).

Exhibit 3. Source of Learning about Apprenticeship Opportunity, by Selected Characteristics



Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races. "Other Method" includes job postings, school or college, recruiter, employment service office, military job, or union.

The next most common sources of information about apprenticeship were *job postings* (12 percent of apprentices) and *school or college* (9 percent) (Appendix Exhibit 5). Again, there is interesting variation between groups. A larger share of Black apprentices reported job postings than did Hispanic apprentices (15 percent versus 5 percent), whereas more Hispanic apprentices reported school or college (14 percent) than did Black apprentices (10 percent). Finally, very few apprentices learned of the opportunity through a union (1 percent), perhaps reflecting AAI's focus on nontraditional occupations, such as healthcare and IT, that are typically not unionized.

- **Few AAI apprentices participated in a pre-apprenticeship program, although rates were higher for Black and Hispanic apprentices.**

  Pre-apprenticeship programs are another pathway to apprenticeship. AAI pre-apprenticeships are relatively short, about 12 weeks on average (Gardiner et al. 2021). In addition to preparing workers to enter and succeed in registered apprenticeship, AAI guidelines require pre-apprenticeship programs to have connections to registered apprenticeship programs. Eighteen percent of men surveyed participated in a pre-apprenticeship program, either through AAI or another program, as did 14 percent of White apprentices (Appendix Exhibit 5). Relative to men, fewer women participated in a pre-apprenticeship program (16 percent). Relative to White apprentices, more Hispanic (23 percent) and Black (24 percent) apprentices participated in a pre-apprenticeship program. The larger share of Hispanic and Black apprentices participating in such programs could suggest that pre-apprenticeships do provide a pathway to apprenticeship for some underrepresented populations.

- **Reported motivation for becoming an AAI apprentice differed by gender and race/ethnicity.**

  The Apprentice Survey asked apprentices to rate the importance of six factors in their decision to become an apprentice rather than pursue other employment or education options (Exhibit 4 and Appendix Exhibit 6). Across all AAI apprentices, for five of the six factors, more than 75 percent of apprentices rated the factor as "most important" for their decision to become an apprentice. The importance of each factor differed somewhat between men and women and across racial/ethnic groups. Relative to men, a larger share of women rated *"I was confident that the skills and credentials I gained would be valued by employers"* as most important (82 percent vs. 78 percent), whereas relative to women, a larger share of men rated *"I could train for an occupation with high earnings potential"* as most important (79 percent vs. 72 percent).

  More Hispanic and Black apprentices than White apprentices rated all six factors as "most important." Among the six factors, *"I could train for a career, not just a job"* received the "most important" rating from most Hispanic and Black apprentices (89 percent and 88 percent, respectively), whereas White apprentices, like women, gave the highest rating to *"I was confident that the skills and credentials I gained would be valued by employers"* (77 percent).

Exhibit 4. Most Important Factors in Decision to Become an AAI Apprentice, by Gender and Race/Ethnicity

Factor	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	White	Black	Other Race
I could train for a career, not just a job (%)	79	79	79	89	75	88	78
I was confident that the skills and credentials I gained would be valued by employers (%)	79	78	82	85	77	82	78
I would have a concrete job opportunity after completing training (%)	77	78	76	83	74	84	77
I could train for an occupation with high earning potential (%)	77	79	72	88	73	83	77
I could earn while I learned (%)	76	76	76	85	74	78	74
I could avoid student debt (%)	60	59	62	71	57	67	50

Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. The factor with the highest rating in each column is shaded in blue. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

What Are the Program Experiences of AAI Apprentices from Underrepresented Populations?

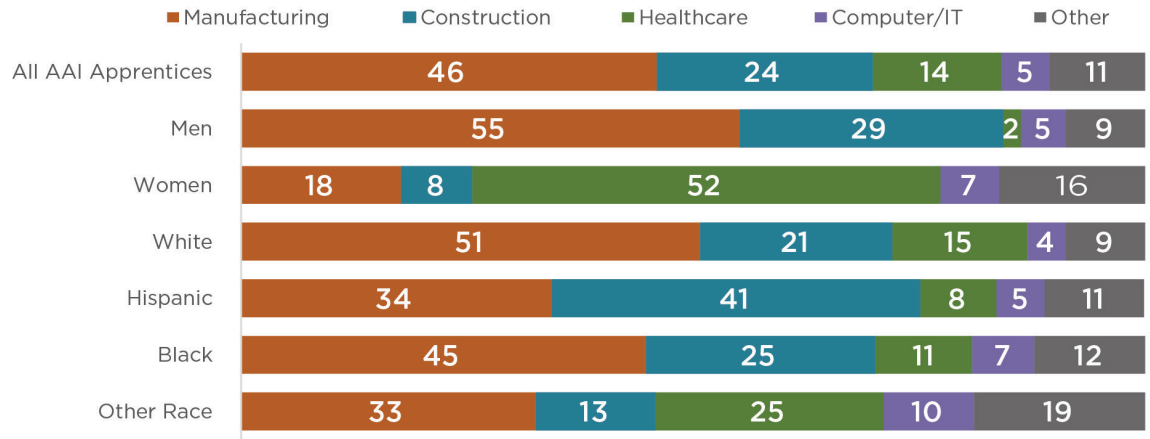
This section examines the program experiences of apprentices from underrepresented populations, including occupational training, receipt of support services, and mentorship.

- **Manufacturing was the most common occupation for men, Black, and Other Race AAI apprentices.**

  As shown in Exhibit 5, almost half of apprentices participated in a manufacturing apprenticeship program (46 percent), making it the most common occupation overall. It was the most common occupation for men (55 percent), Black apprentices (45 percent) and Other Race apprentices (33 percent), although the proportions of Black and Other Race apprentices were considerably lower than for men. Conversely, the most common occupation for women was healthcare (52 percent), and for Hispanic apprentices was construction (41 percent).

  Other Race apprentices were the most diverse in occupation selection; although manufacturing was most common, large shares participated in healthcare (25 percent) and other occupations (19 percent). More participated in IT apprenticeships (10 percent) than did any other subgroup.

Exhibit 5. AAI Apprenticeship Training Occupation, by Gender and Race/Ethnicity



Source: AAI Apprentice Survey. N=2,601.

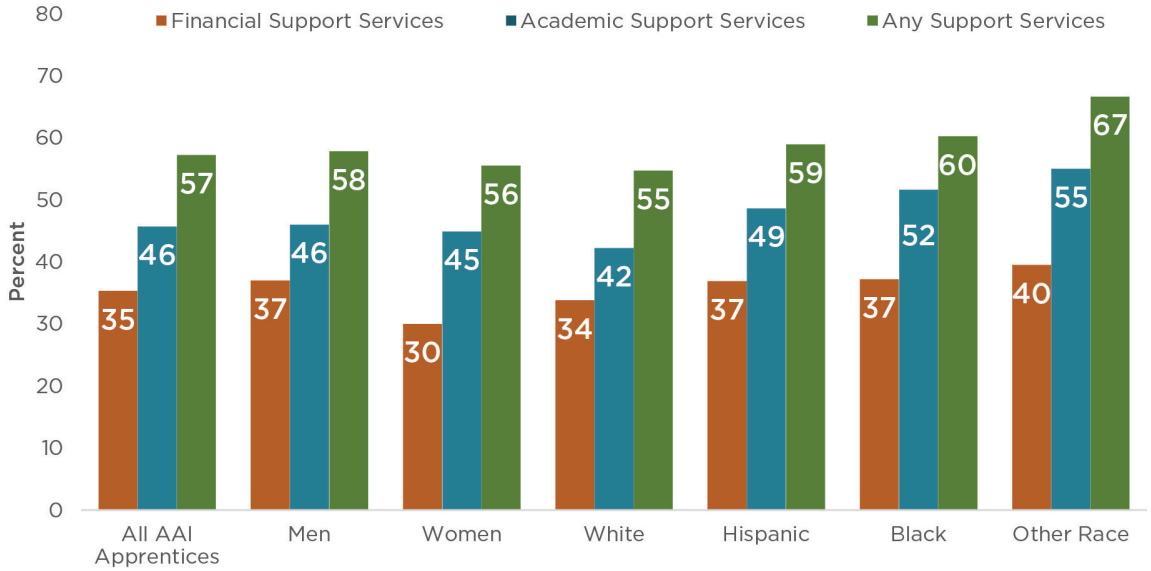
Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races. The AAI evaluation defines occupations based on the 2010 Standard Occupational Classification (SOC) system. The SOC codes have a six-digit hierarchy. For this evaluation, codes that start with 15-11 are computer/IT occupations. Code 19-4099 and codes that start with 17-3, 49, or 51 are manufacturing occupations. Codes that start with 47 are construction occupations. Codes 21-1091, 21-1094, 43-6013, and those that start with 29 and 31 are healthcare occupations. All other codes are "other" occupations, and include banking, finance, transportation, and logistics. Not all subtotals sum to 100 percent due to rounding.

The average length of apprenticeship programs varied substantially by occupation (Appendix Exhibit 7). Apprenticeships in construction occupations were the longest, with an average expected length of 4.2 years. Manufacturing apprenticeships lasted an average of 2.8 years. Apprenticeships in computer/IT occupations (1.4 years), healthcare occupations (1.2 years), and other occupations (1.5 years) were relatively short. These differences have implications for how long different groups are enrolled in apprenticeship, as described further below.

- **Most AAI apprentices received at least one type of academic or financial support during their apprenticeship. Receipt of support services was lowest for White apprentices and highest for Other Race apprentices.**

AAI apprentices received a variety of support services from grantees or employers to help them enter and persist in training. Such services included financial support (e.g., paying the costs of training-related materials such as uniforms, tools, and textbooks; providing transportation assistance and dependent care assistance for apprentices with children) and academic support (e.g., academic counseling, tutoring, basic skills instruction). Most apprentices (57 percent) reported receiving at least one type of academic or financial support (Exhibit 6 and Appendix Exhibit 7).[13] Relative to women, a larger share of men received financial support, although less than half of both subgroups received it (30 percent and 37 percent, respectively). Fewer White apprentices (55 percent) received either financial or academic supports than did other racial/ethnic subgroups (i.e., Hispanic, Black, and Other Race apprentices, which ranged from 59 percent to 67 percent). A larger share of Other Race apprentices than any other group received each type of support as well as any support.

Exhibit 6. Receipt of Supports While Attending AAI Apprenticeship, by Gender and Race/Ethnicity



Source: AAI Apprentice Survey. N=2,601.

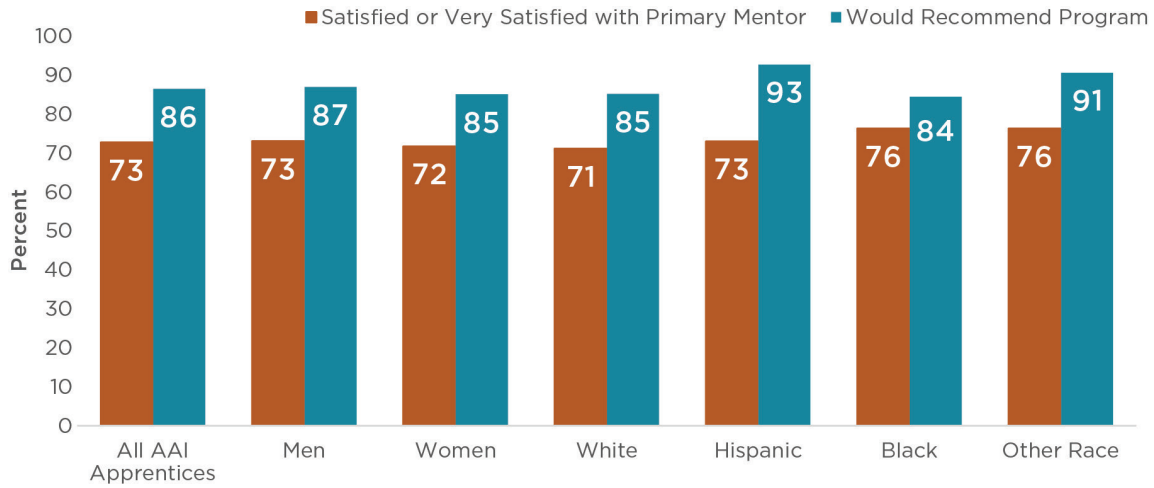
Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

13 Receipt of support is based on self-reported responses to a multiple-choice question in the AAI Apprentice Survey. Financial support does not include payment of wages.

- **AAI apprentices reported high levels of satisfaction with their primary mentor and overall program, regardless of subgroup.**

  Seventy-three (73) percent of AAI apprentices reported being "satisfied" or "very satisfied" with their primary mentor (Exhibit 7 and Appendix Exhibit 7). The level of satisfaction was similar for men and women and across racial/ethnic subgroups. Eighty-six (86) percent of AAI apprentices would recommend their programs to a family member or friend who wants to work in their field. The proportion was highest among Hispanic apprentices (93 percent) and Other Race apprentices (91 percent).

Exhibit 7. Satisfaction with Primary Mentor and Overall Program, by Gender and Race/Ethnicity



Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

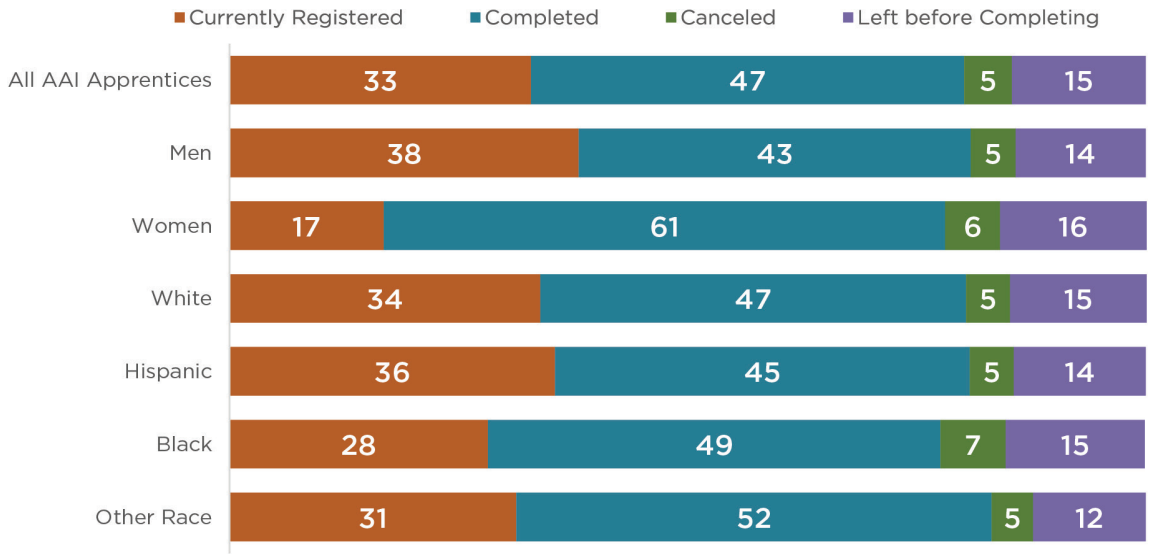
What Are the Outcomes of AAI Apprentices from Underrepresented Populations?

The AAI grants aimed to help participants complete their programs and secure employment in high-growth occupations. This section examines key post-program outcomes of underrepresented populations and AAI apprentices overall, including program completion, employment levels, and earnings levels and growth.

- **More than three-quarters of AAI apprentices had completed their programs or were still registered at the time of the Apprentice Survey. A larger share of women completed their programs than men, with little difference among other subgroups.**

  At the time of the Apprentice Survey (approximately 2.7 years after the apprenticeship start date), 80 percent of apprentices had completed (47 percent) or were still enrolled (33 percent) in their programs (Exhibit 8). Compared to men, apprentices from underrepresented populations persisted and completed at similar or higher rates. Specifically, a larger share of women completed their programs relative to men (61 percent vs. 43 percent). The disparity in completion rates reflects that a larger share of men than women enrolled in longer-term programs such as construction and manufacturing, and thus were still attending them when they responded to the survey. There was little difference in enrollment or completion outcomes between racial and ethnic subgroups.

Exhibit 8. Completion of AAI Apprenticeship Programs, by Gender and Race/Ethnicity



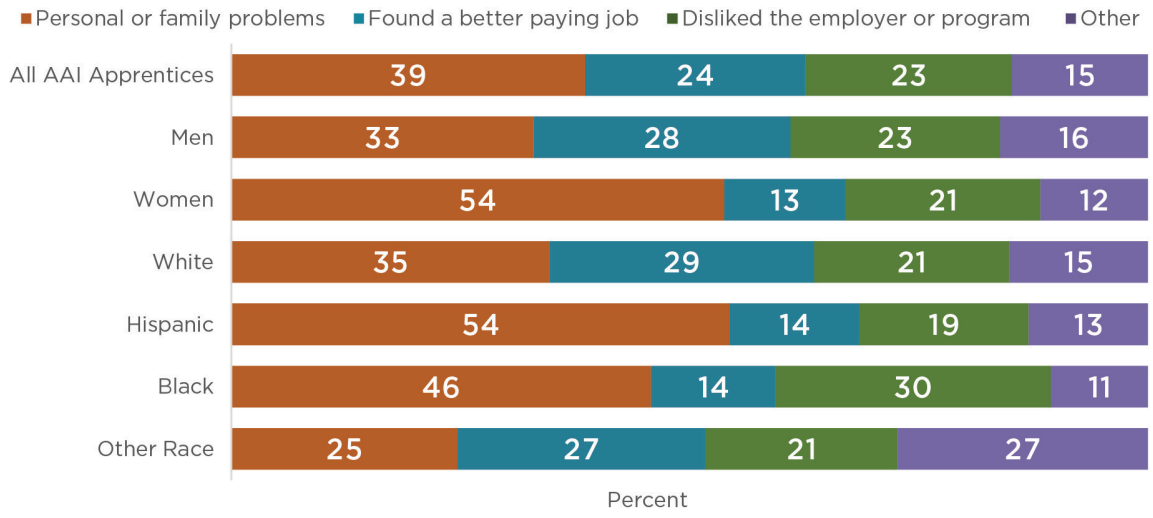
Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races. Per DOL, cancellation is the termination of the registration or approval status of a program at the request of the sponsor, or the termination of an apprenticeship agreement at the request of the apprentice (see https://www.dol.gov/sites/dolgov/files/ETA/apprenticeship/pdfs/Probationary_Periods_Cancellations.pdf).

- **The share of AAI apprentices from underrepresented populations who left their programs without completing was similar for all AAI apprentices. Among these leavers, however, a larger share of women, Hispanic, and Black apprentices cited family or personal problems.**

  About 15 percent of apprentices left their programs without completing, and another 5 percent had their programs cancelled by the employer or program sponsor. The share who left their programs without completing was similar across all subgroups (Exhibit 8). Personal or family problems was the primary reason for leaving their programs for all groups except Other Race apprentices, who most commonly reported they found a better paying job (Exhibit 9). However, larger shares of women, Hispanic, and Black apprentices left for personal or family reasons than did men. Relative to all AAI apprentices, more men, White apprentices, and Other Race apprentices left their apprenticeship programs for a better-paying job. A larger share of Black apprentices reported leaving their programs because they disliked the employer or the program than did apprentices from other groups. Less than 1 percent of apprentices cited the COVID-19 pandemic as the primary reason for leaving their programs (Appendix Exhibit 8).[14]

Exhibit 9. Reason for Leaving AAI Apprenticeship Program without Completing, by Gender and Race/Ethnicity



Source: AAI Apprentice Survey. N=366. Sample is limited to apprentices who left their programs without completing

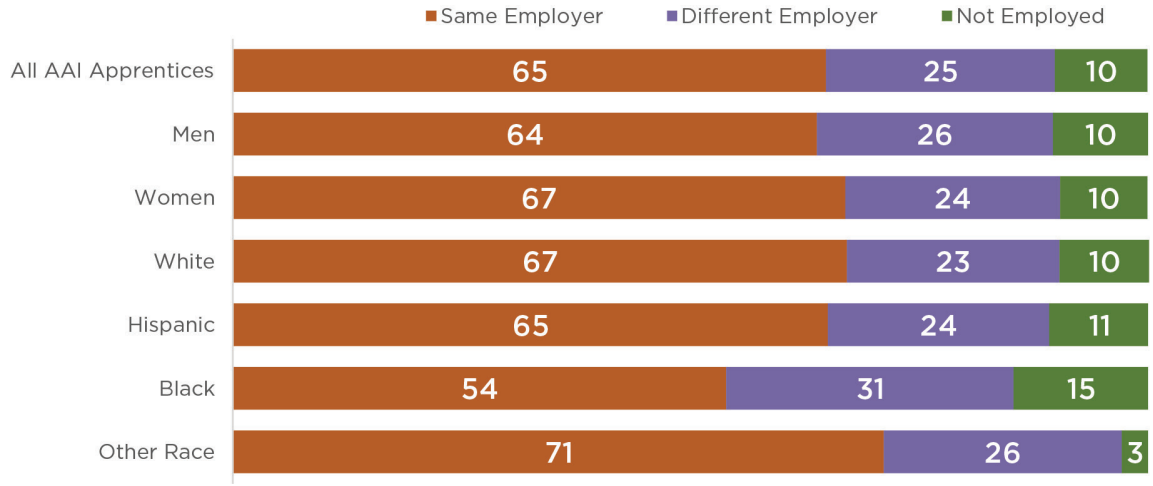
Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

14 The Apprentice Survey was conducted between March and October 2020, during the initial months of the COVID-19 pandemic.

- **Aligned with all AAI apprentices, most apprenticeship completers from underrepresented populations were employed. A greater proportion of women and Other Race apprentices remained with the same employer than did Black and Hispanic apprentices.**

  Among apprentices who completed their programs, 90 percent were employed at the time of the Apprentice Survey (Exhibit 10 and Appendix Exhibit 8). Nearly two-thirds (65 percent) were working at the same employer that operated their apprenticeship program. Men and women apprentices were employed at similar rates; slightly more women than men remained with the same employer (67 percent vs. 64 percent). Among racial/ethnic subgroups, Black apprentices had a lower overall employment rate (85 percent) than did White and Hispanic apprentices (90 and 89 percent, respectively), whereas Other Race apprentices had the highest employment rate of any group (97 percent). Additionally, a smaller share of Black apprenticeship completers remained with their employer post completion (54 percent), compared to 65 percent of Hispanic completers and 71 percent of Other Race completers.

Exhibit 10. Employment among AAI Program Completers, by Gender and Race/Ethnicity



Source: AAI Apprentice Survey. N=1,191. Sample is limited to apprentices who completed their programs by survey follow-up.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races

The outcomes presented thus far are based on responses to the AAI Apprentice Survey. The results presented below use administrative data from the National Directory of New Hires (NDNH), which provides quarterly earnings data for more AAI apprentices. The analysis consists of apprentices whose programs ended by September 2019, for whom five quarters of post-program earnings are available. The analyses include both those who completed their programs and those who left without completing, and includes both survey respondents and those who did not receive the survey.[15]

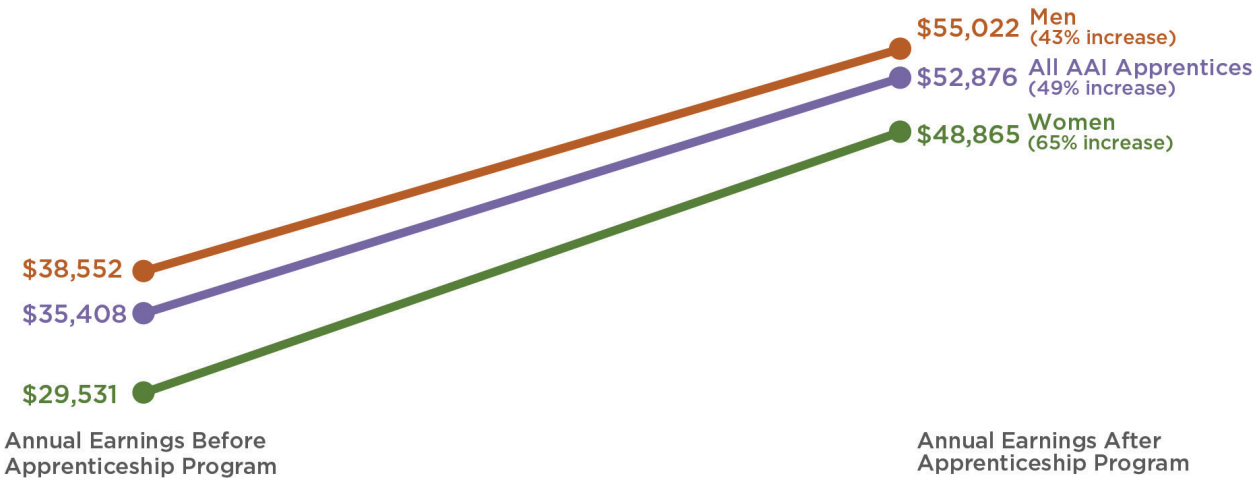
- **Earnings grew by about 50 percent on average between the year prior to starting the AAI apprenticeship and the year of program completion.**

  In the year prior to starting their apprenticeship, AAI apprentices earned $35,408 on average. After program exit, apprentices earned $52,876 on average, for an increase in earnings of about 50 percent (Exhibit 11 and Appendix Exhibit 9).[16]

- **Women experienced higher earnings growth than men did, both in earnings level and percentage change.**

  Annual earnings for women apprentices grew by $19,334, an increase of 65 percent from pre-program levels, more than 20 percentage points higher than men (Exhibit 11). Earnings for men grew by $16,469, an increase of 43 percent from pre-program levels.

Exhibit 11. AAI Apprentice Earnings Levels and Growth, by Gender



Source: National Directory of New Hires. N=3,871.

Notes: Results include data through December 2020. Sample includes participants with a valid Social Security number in the Apprenticeship QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-apprenticeship program quarter. The NDNH sample size is larger than the survey sample size because it includes survey respondents and those that did not receive the survey. "Annual earnings after apprenticeship program" is equal to earnings in the fifth quarter after the expected apprenticeship program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan.

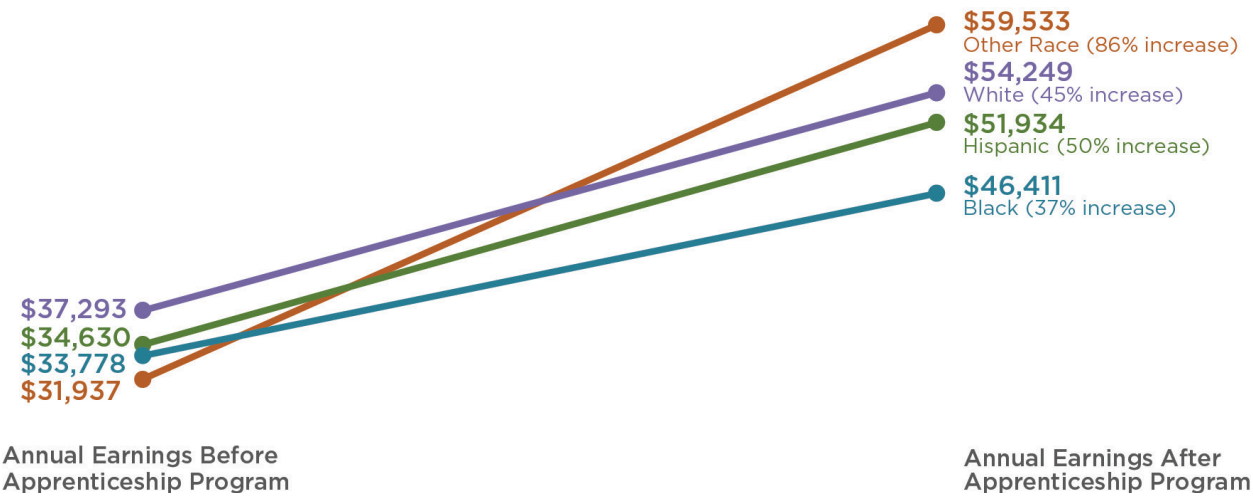
15 The NDNH sample includes participants with a valid Social Security number in the Apprenticeship QPR. Earnings data is available through December 2020. The analysis in this section includes apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-program quarter. The analysis includes both completers and non-completers, as well as those who responded to the survey and those who did not, in order to measure the outcomes of all AAI apprentices. The sample for this analysis is 3,871 apprentices.

16 Annual post-program earnings are equal to earnings in the fifth quarter after the expected program completion date, multiplied by four.

- **Black AAI apprentices experienced lower earnings growth than White apprentices did, whereas Other Race apprentices experienced the highest earnings growth.**

  Earnings increased for all racial and ethnic subgroups but with notable variation. Earnings for Black apprentices grew by $12,633 (a 37 percent increase from pre-program earnings), which was lower than for other racial/ethnic groups (Exhibit 12). Earnings growth was similar for White apprentices ($16,956, a 45 percent increase) and Hispanic apprentices ($17,304, a 50 percent increase). Earnings growth was largest for apprentices of other races; for this group, earnings grew by $27,596, an increase of 86 percent from pre-program earnings.

Exhibit 12. AAI Apprentice Earnings Levels and Growth, by Race/Ethnicity



Source: National Directory of New Hires. N=3,871.

Notes: Results include data through December 2020. Sample includes participants with a valid Social Security number in the Apprenticeship QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-apprenticeship program quarter. The NDNH sample size is larger than the survey sample size because it includes survey respondents and those that did not receive the survey. "Annual earnings after apprenticeship program" is equal to earnings in the fifth quarter after the expected apprenticeship program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

- **For nearly all groups, but particularly for women, Black, and Other Race AAI apprentices, earnings growth was higher for those with lower pre-program earnings.**

  In the year before starting the apprenticeship, apprentices in the 75th percentile of earnings (i.e., those earning more than what 75 percent of all study participants did) earned about $50,000 (Appendix Exhibit 10). In the year after program exit, earnings for apprentices in the 75th percentile rose to $74,000, for an increase of about 47 percent. In contrast, earnings for those in the 25th percentile (i.e., those earning more than what 25 percent of all study participants did) more than doubled, rising from about $14,000 in the year prior to starting the apprenticeship to nearly $31,000 after program exit, or 114 percent.[17]

17 An alternative measure of earnings variation is the ratio of the 75th percentile earnings to 25th percentile earnings. As shown in Appendix Exhibit 10, this ratio declined from 3.5 to 2.4, reflecting a narrowing of the earnings gap between high-earners and low-earners.

The increase for those with lower pre-program earnings was striking for underrepresented populations. Among Other Race and women apprentices, earnings for apprentices in the 25th percentile grew 218 percent and 140 percent, respectively, compared to 73 percent and 64 percent for those with higher earnings. Black apprentices in the 25th percentile saw a 96 percent earnings increase versus 36 percent among those with higher earnings. Finally, Hispanic apprentices with low earnings experienced a 63 percent increase in earnings, compared to 48 percent among those with higher earnings.

- **Earnings growth was higher for White women AAI apprentices than for Black women apprentices, due in part to differences in occupations. There was little difference in earnings growth between White men apprentices and Black men apprentices.**

The study finds differences in earnings by racial/ethnic group between men and women. Earnings for White women apprentices grew by nearly $22,000 (a 74 percent increase from pre-program earnings), whereas earnings for Black women apprentices grew by about $13,000 (a 48 percent increase) (Appendix Exhibit 9).

Occupational choice may contribute to the difference in earnings growth between groups (Exhibit 13). Most women, regardless of race, enrolled in healthcare occupations. However, a larger share of White women apprentices in healthcare participated in Registered Nurse apprenticeships (46 percent) than did Black women apprentices (11 percent), an occupation with relatively high post-program earnings growth. More Black women apprentices than White women apprentices participated in lower-paying occupations, such as Pharmacy Technician (49 percent vs. 8 percent) and Nursing Assistant (26 percent vs. 10 percent).

Exhibit 13. Earnings for Women, by Healthcare Occupation and Race/Ethnicity

Occupation	Annual Earnings ($)			Share of Apprentices (%)	
	Before Program	After Program	Change	White Women (N=295)	Black Women (N=89)
Registered Nurse	15,056	82,745	67,688	46%	11%
Medical Records and Health Information Technician	44,825	59,499	14,674	35%	13%
Pharmacy Technician	9,624	23,709	14,085	8%	49%
Nursing Assistant	18,438	30,232	11,794	10%	26%

Source: National Directory of New Hires. N=384.

Notes: Results include data through December 2020. Sample includes participants with a valid Social Security number in the Apprenticeship QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-program quarter. "Annual earnings after program" is equal to earnings in the fifth quarter after the expected program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan. The occupation with the largest share for each group is shaded in blue. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race.

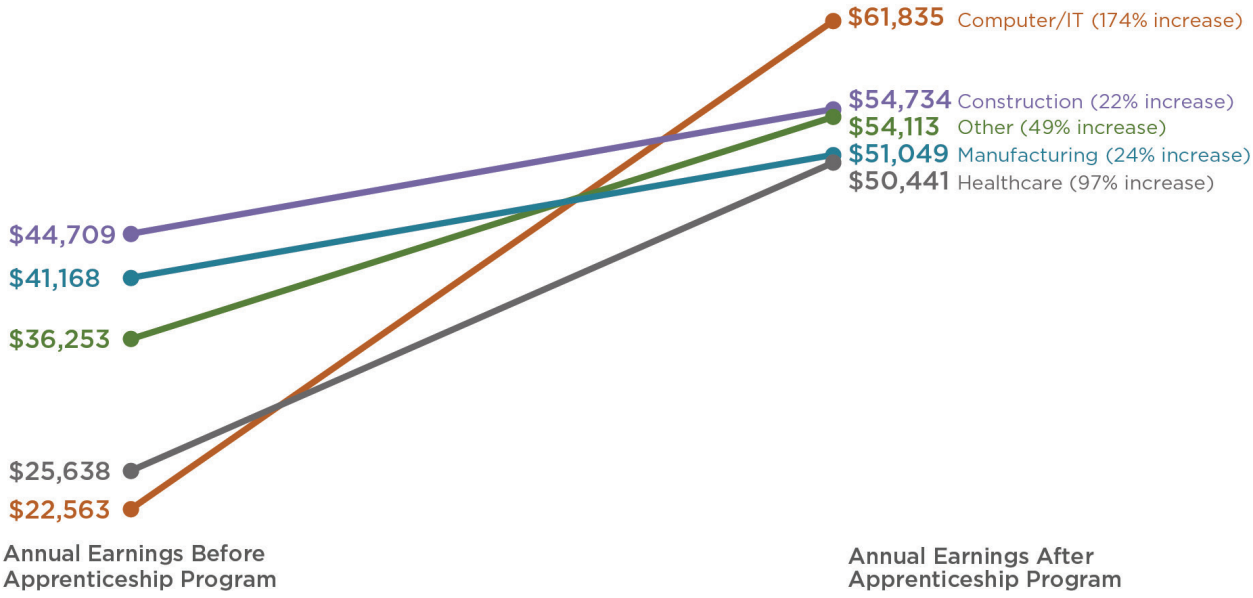
In contrast, earnings growth for White men and Black men were more similar. Earnings for White men grew by $14,599, or 36 percent of pre-program earnings, whereas earnings for Black men grew by $12,437, or 33 percent (Appendix Exhibit 9). White men and Black men earned more than $50,000 per year after the apprenticeship program. Thus, most of the overall difference in earnings levels and growth between White and Black apprentices occurred among women.

- **Earnings growth was highest for apprentices in computer/IT and healthcare occupations and lowest for apprentices in construction and manufacturing.**

The study finds substantial variation in earnings growth by occupation (Exhibit 14). Apprentices in computer/IT occupations experienced the highest level of earnings growth, $39,272, or 174 percent. Apprentices in healthcare occupations experienced the second-highest level of earnings growth, $24,803, or 97 percent. These two occupational groups also had the largest increases in employment (18 percentage points and 12 percentage points, respectively) (Appendix Exhibit 9).

Earnings growth was lowest for apprentices in the manufacturing and construction occupations ($9,881 and $10,025, respectively). However, the limited availability of earnings data means that apprentices from longer-term programs are excluded from this analysis. Because many of the longer-term programs are in manufacturing and construction, greater levels of earnings growth may emerge over time as apprentices complete their longer-term programs.

Exhibit 14. AAI Apprentice Earnings Levels and Growth, by Occupation



Source: National Directory of New Hires. N=3,871.

Notes: Results include data through December 2020. Sample includes participants with a valid Social Security number in the Apprenticeship QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-apprenticeship program quarter. The NDNH sample size is larger than the survey sample size because it includes survey respondents and those that did not receive the survey. "Annual earnings after apprenticeship program" is equal to earnings in the fifth quarter after the expected apprenticeship program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan. The AAI evaluation defines occupations based on the 2010 Standard Occupational Classification (SOC) system. The SOC codes have a six-digit hierarchy. For this evaluation, codes that start with 15-11 are computer/IT occupations. Code 19-4099 and codes that start with 17-3, 49, or 51 are manufacturing occupations. Codes that start with 47 are construction occupations. Codes 21-1091, 21-1094, 43-6013, and those that start with 29 and 31 are healthcare occupations. All other codes are "other" occupations, and include banking, finance, transportation, and logistics.

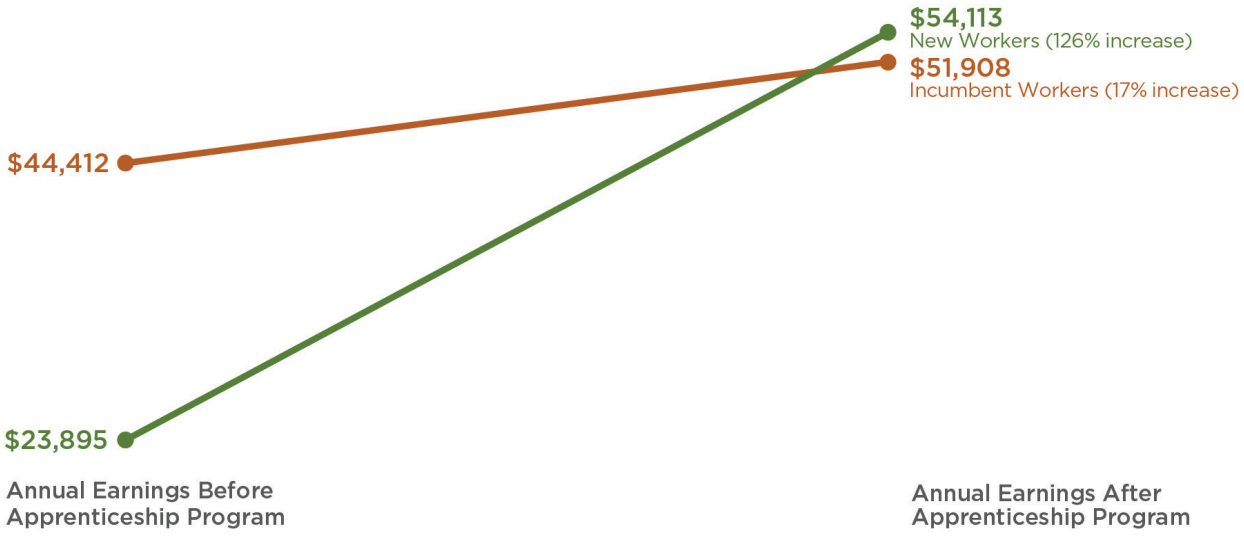
The differences in earnings growth by occupation has implications for earnings growth for underrepresented populations. As shown earlier, Other Race apprentices are more likely to enroll in healthcare and computer/IT occupations than White, Black, or Hispanic apprentices. These two occupations have the highest earnings growth, so the choice of occupation contributes to higher earnings growth for Other Race apprentices. Similarly, more women than men enrolled in healthcare apprenticeships, which had the second-highest level of earnings growth; this contributed to higher earnings growth for women than men.

- **Earnings growth was greater for new workers than for incumbent workers.**

The earnings data shows a substantial difference in earnings growth between new workers and incumbent workers (Exhibit 15). Among workers who were already working at the employer that operated the apprenticeship, earnings grew by $7,496, or 17 percent. Among new workers hired by the employer that operated the apprenticeship, earnings grew by $30,217, or 126 percent. As with previous results, it is notable that earnings growth was higher for the group with the lowest pre-program earnings (new workers), such that their post-program earnings are now higher than those of incumbent workers.

As shown earlier in this brief, 60 percent of White men apprentices are incumbent workers, compared to 52 percent of apprentices from underrepresented populations. Since incumbent workers have lower earnings growth than new workers, the lower rate of incumbency for underrepresented workers contributes to higher earnings growth compared to White men apprentices.

Exhibit 15. AAI Apprentice Earnings Outcomes, by Incumbency



Source: National Directory of New Hires. N=3,871.

Notes: Results include data through December 2020. Sample includes participants with a valid Social Security number in the Apprenticeship QPR, and is restricted to apprentices whose apprenticeship programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-apprenticeship program quarter. The NDNH sample size is larger than the survey sample size because it includes survey respondents and those that did not receive the survey. "Annual earnings after program" is equal to earnings in the fifth quarter after the expected apprenticeship program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan.

Summary

The American Apprenticeship Initiative (AAI) aimed to expand registered apprenticeship into industry sectors with few apprenticeships and to populations traditionally underrepresented in apprenticeship. This brief explores the characteristics, program experiences, and post-program outcomes of AAI apprentices from underrepresented populations, defined in this brief as women and people of color.[18]

Consistent with the goals of AAI, most apprentices (54 percent) were women or people of color (Black, Hispanic, or Other Races), 15 percentage points more than all registered apprentices (39 percent). Relative to all registered apprentices, a larger share of AAI apprentices were women and Black.

About three-quarters of AAI apprentices from underrepresented populations participated in nontraditional registered apprenticeship occupations—that is, occupations not affiliated with the construction industry. Manufacturing was the most prevalent occupation of AAI apprentices overall, as well as for men, White, Black, and Other Race apprentices. The share of apprentices in manufacturing ranged from 33 percent of Other Race apprentices to 51 percent of White apprentices. Women also enrolled primarily in a nontraditional occupation, healthcare. Conversely, the largest share of Hispanic apprentices enrolled in construction apprenticeships.

Most AAI apprentices from underrepresented populations completed their apprenticeship or were still enrolled in their program. At the time of the AAI Apprentice Survey (about 2.7 years after apprentices started their programs), about 80 percent of women, Black, Hispanic, and Other Race apprentices completed (about 50 percent) or were still enrolled in their programs (about 30 percent). There were no differences by gender and race/ethnicity in exit rates due to either leaving the apprenticeship or cancellation of the apprenticeship (about 20 percent of each group). Among those who left their program without completing, however, a larger share of women, Hispanic, and Black apprentices cited family or personal problems.

Most apprenticeship completers from underrepresented populations were employed, most often with the same employer that operated the apprenticeship. Employment rates ranged from 85 percent among Black apprentices to 97 percent among Other Race apprentices. Seventy-one (71) percent of Other Race apprentices remained with the same employer, compared to 54 percent of Black apprentices.

Earnings grew by about 50 percent on average between the year prior to starting the AAI apprenticeship and the year after the program was completed, rising from about $35,000 to nearly $53,000. Women experienced higher earnings growth than did men (65 percent vs. 43 percent). Earnings growth was highest for Other Race apprentices (86 percent), followed by Hispanic (50 percent), White (45 percent) and Black (37 percent) apprentices.

18 Complete findings for the AAI outcomes study can be found in Walton et al. (2022), and implementation findings are available in Gardiner et al. 2021, Copson et al. 2021, and Fumia et al. 2022.

Most of the difference in earnings growth between Black and White AAI apprentices occurs among women. A larger share of Black women apprentices than White women apprentices enrolled in healthcare occupations with lower earnings levels and lower growth. Earnings for White women apprentices grew by nearly $22,000 (a 74 percent increase from pre-program earnings), whereas earnings for Black women apprentices grew by about $13,000 (a 48 percent increase).

The nature of AAI apprenticeship occupation has implications for wage growth. Average wage growth for apprentices in computer/IT occupations was the largest (174 percent), followed by healthcare apprentices (97 percent), manufacturing (24 percent), and construction (22 percent).

For nearly all groups, but particularly women, Black, and Other Race apprentices, earnings for low-earners grew more than high-earners. Apprentices in the 25th percentile of earners experienced a 114 percent earnings increase post apprenticeship compared to a 47 percent increase for high earners (those in the 75th percentile). Earnings growth for low-earning Other Race apprentices was largest (218 percent), followed by women (140 percent) and Black (96 percent) apprentices.

Discussion and Areas for Future Inquiry

These results point to several considerations for programs:

- Programs might consider whether additional support services could help apprentices to persist and complete their programs—particularly for women, Black apprentices, and Hispanic apprentices, a larger share of whom, relative to White men, left their programs due to personal or family problems.
- Though most apprentices remained with the same employer after program completion, programs might explore how to improve retention for Black apprentices, who were least likely to remain employed with the same employer.
- Programs might explore strategies to promote entry into higher-paying occupations for underrepresented populations. For example, the study found that Black women apprentices participated in shorter-term, lower-paying healthcare apprenticeships, such as Pharmacy Technician, whereas White women apprentices participated in longer-term, higher-paying healthcare apprenticeships, such as Registered Nurse. Future programs might consider ways to promote entry into and completion of apprenticeships in higher-paying occupations by underrepresented populations. Future research might explore underlying reasons for this difference.

The findings also suggest several areas for further inquiry:

- The earnings analysis in this brief covers a period one year after the apprenticeship ended and excluded longer-term programs. Additional earnings follow-up would answer several important questions: Did apprentices from underrepresented populations in longer-term programs experience earnings growth of a similar magnitude to those in shorter-term programs? Did earnings increases persist for apprentices who enrolled in shorter-term programs? Did earnings gaps further narrow between subgroups (e.g., men and women)?
- Future research might consider rigorous study designs to assess the impact of registered apprenticeship programs. While the information reported in this brief provides important details about apprentices' in-program experiences and their employment and earnings outcomes, the study design does not allow for causal analysis of registered apprenticeship programs. A future study that randomizes apprentices to a treatment group that can enroll in the apprenticeship program or to a control group that cannot, but can access other workforce training programs, could help build evidence on the causal impact of registered apprenticeship programs.

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Appendix

Appendix Exhibit 1. AAI Apprentice Characteristics at Enrollment

Characteristic	Mean
Gender (%)	
Men	75.5
Women	24.5
Race/Ethnicity (%)	
Hispanic (any race)	13.3
Non-Hispanic White	60.9
Non-Hispanic Black	17.2
Non-Hispanic Other	8.6
Any underrepresented group (women or people of color) (%)	53.5
Veteran (%)	12.5
Age (%)	
24 or younger	27.8
25 to 34	35.0
35 to 44	20.1
45 to 54	12.8
55 to 64	4.1
65 or older	0.3
Mean (yrs)	33
Median (yrs)	30
Marital Status (%)	
Married	38.3
Separated/divorced/widowed	13.3
Never married	48.4
Living with children (%)	25.9
Highest Education (%)	
Less than high school	1.2
High school or GED	33.3
Some college, no credential	28.5
Technical, trade, or vocational credential	9.8
Associate degree	11.7
Bachelor's degree or higher	15.5
Total Earnings in 12 Months Prior to Apprenticeship (%)	
$0	5.0
$1 to $9,999	17.8
$10,000 to $19,999	8.9
$20,000 to $29,999	16.1
$30,000 to $39,999	20.9
$40,000 to $49,999	11.1
$50,000 or more	20.2
Earnings (mean) ($)	31,016
Earnings (median) ($)	32,479

Sources: AAI Apprentice Survey and QPR. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 2. Selected Characteristics of AAI Apprentices versus RAPIDS Apprentices

Characteristic	AAI Apprentices	RAPIDS Apprentices
Women or people of color (%)	53.5	39.0
Gender (%)		
Men	75.5	91.9
Women	24.5	9.1
Race/Ethnicity (%)		
Hispanic (any race)	13.3	21.7
Non-Hispanic White	60.9	62.8
Non-Hispanic Black	17.2	10.7
Non-Hispanic Other	8.6	4.9

Sources: AAI Apprentice Survey and QPR (N=2,601); RAPIDS (N=220,556). RAPIDS sample comprises apprentices registered between 2015 and 2018 who were still enrolled in 2020.

Notes: Survey means are weighted for survey non-response and imputed for item non-response. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 3. Characteristics of All AAI Apprentices versus Apprentices from Underrepresented Populations and Selected Subgroups

Characteristic	Share of Sample (%)	Average Age (yrs)	Currently Married (%)	Living with Children (%)	Any Prior College (%)	Incumbent Worker (%)	Average Earnings Prior to Apprenticeship ($)
All AAI apprentices	100.0	32.7	38.3	25.9	65.5	57.1	31,016
Women or people of color	53.5	34.0	37.2	29.3	68.3	52.0	27,175
Gender							
Men	75.5	31.4	37.8	22.7	60.6	56.3	32,479
Women	24.5	36.7	40.0	35.7	80.8	59.8	26,503
Race/Ethnicity							
Hispanic (any race)	13.3	28.8	34.3	25.5	50.6	46.1	24,826
Non-Hispanic White	60.9	32.8	41.0	25.2	66.8	63.4	34,124
Non-Hispanic Black	17.2	35.2	30.0	25.2	70.6	47.8	26,193
Non-Hispanic Other	8.6	33.5	42.3	33.2	69.3	48.8	28,203

Sources: AAI Apprentice Survey and QPR (N=2,601).

Notes: Survey means are weighted for survey non-response and imputed for item non-response. The "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 4. Selected Characteristics of All AAI Apprentices, by Gender and Race/Ethnicity

Characteristic	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
Age (yrs)	32.7	31.4	36.7	28.8	32.8	35.2	33.5
Race/Ethnicity (%)							
Hispanic (any race)	13.3	13.7	11.8	–	–	–	–
Non-Hispanic White	60.9	61.6	58.9	–	–	–	–
Non-Hispanic Black	17.2	17.0	17.9	–	–	–	–
Non-Hispanic Other	8.6	7.7	11.3	–	–	–	–
Race/Ethnicity (%)							
High school/GED	34.5	39.5	19.1	49.4	33.2	29.4	30.7
Some college, no degree	38.3	38.3	38.5	34.5	38.8	42.1	33.2
Associate degree or higher	27.2	22.3	42.3	16.1	28.0	28.5	36.1
Total Earnings in 12 Months Prior to Apprenticeship (%)							
$0	5.0	4.7	6.0	5.7	3.8	7.6	7.0
$1 to $9,999	17.8	15.8	23.9	22.1	14.3	21.8	27.9
$10,000 to $19,999	8.9	9.3	7.7	11.5	8.0	11.3	6.7
$20,000 to $29,999	16.1	16.0	16.4	18.9	16.4	16.2	9.9
$30,000 to $39,999	20.9	19.8	24.0	21.5	22.7	15.7	16.9
$40,000 to $49,999	11.1	12.1	8.2	8.3	11.2	11.3	14.8
$50,000 or more	20.2	22.3	13.9	12.0	23.6	16.0	16.7
Earnings (mean) ($)	$31,016	$32,479	$26,503	$24,826	$34,124	$26,193	$28,203
Incumbent worker (%)	57.1	56.3	59.8	46.1	63.4	47.8	48.8

Sources: AAI Apprentice Survey and QPR. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 5. Prior Knowledge of Apprenticeship and Learning of Opportunity of All AAI Apprentices, by Gender and Race/Ethnicity

Experience	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
How much did you know about apprenticeship before you heard about this apprenticeship? (%)							
Quite a bit	15.8	16.9	12.2	11.0	15.6	18.8	18.3
Some	24.6	25.2	23.0	28.0	26.4	19.8	16.9
Very little	32.8	33.8	29.7	30.0	32.8	34.2	34.2
None	26.8	24.1	35.2	31.0	25.2	27.3	30.6
How did you learn about this apprenticeship opportunity? (%)							
Employer at the time	46.4	44.9	51.7	27.5	52.4	40.1	42.8
Friend or acquaintance	20.8	23.3	12.1	42.4	17.9	18.9	14.4
Job posting (online or printed)	11.6	11.4	12.2	4.7	11.5	15.0	15.2
School/college	8.5	8.6	8.1	13.8	6.6	9.8	11.8
Other	4.7	3.9	7.8	1.0	5.0	5.9	6.0
Recruiter	3.2	3.0	4.0	3.4	2.8	3.1	6.2
Employment service office	2.5	2.4	3.0	3.1	2.3	3.7	1.3
Military job	1.2	1.3	0.7	2.1	0.7	2.3	0.7
Union	1.1	1.3	0.5	1.9	0.8	1.3	1.6
Ever part of pre-apprenticeship (%)							
Yes, with the same employer	12.2	12.8	10.5	17.9	9.6	16.4	14.0
Yes, with a different employer	4.9	4.8	5.2	4.8	4.0	7.4	6.4
No	82.8	82.4	84.2	77.2	86.4	76.1	79.5

Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 6. Motivation and Concern about Apprenticeship of All AAI Apprentices, by Gender and Race/Ethnicity

Motivation or Concern	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
Importance of each factor in decision to become an apprentice:							
I could train for a career, not just a job (%)							
Most important	79.1	79.2	78.7	89.4	74.6	87.7	78.1
Of secondary importance	16.8	16.9	16.3	9.7	20.6	9.5	15.0
Least important or not important	4.1	3.8	5.0	0.9	4.8	2.8	6.8
I was confident that the skills and credentials I gained would be valued by employers (%)							
Most important	78.8	77.9	81.6	85.2	76.5	82.4	78.1
Of secondary importance	18.7	19.7	15.7	13.1	20.7	16.2	18.2
Least important or not important	2.5	2.5	2.7	1.7	2.9	1.4	3.7
I would have a concrete job opportunity after completing training (%)							
Most important	77.3	77.7	76.0	82.7	74.4	83.6	76.9
Of secondary importance	16.3	16.1	16.9	13.7	17.8	11.6	18.8
Least important or not important	6.4	6.2	7.1	3.6	7.8	4.8	4.3
I could train for an occupation with high earning potential (%)							
Most important	77.1	78.9	71.5	88.0	73.1	82.9	76.9
Of secondary importance	18.7	17.2	23.1	11.2	21.5	14.8	18.1
Least important or not important	4.2	3.8	5.4	0.8	5.4	2.3	5.0
I could earn while I learned (%)							
Most important	75.8	75.6	76.3	84.9	73.5	77.7	74.0
Of secondary importance	19.6	19.8	18.8	13.8	21.0	18.0	21.8
Least important or not important	4.6	4.5	4.9	1.2	5.5	4.2	4.3
I could avoid student debt (%)							
Most important	60.0	59.4	61.9	71.3	57.0	66.9	50.2
Of secondary importance	20.1	20.7	18.0	12.9	22.4	14.8	25.0
Least important or not important	19.9	19.9	20.1	15.8	20.6	18.3	24.8

Motivation or Concern	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
How much of a concern were each of the following factors in decision to become an apprentice:							
Having to take time for training, rather than getting right to work (%)							
Strong concern	18.1	16.7	22.4	24.7	14.4	24.1	21.9
Moderate concern	33.2	33.4	32.6	39.2	33.0	29.7	32.8
Not a concern	48.7	49.8	45.0	36.0	52.6	46.3	45.3
Committing so strongly to a single career path (%)							
Strong concern	16.0	16.6	14.3	18.7	13.0	21.0	23.0
Moderate concern	33.5	35.3	28.1	39.2	34.3	27.4	31.9
Not a concern	50.4	48.1	57.6	42.1	52.7	51.5	45.2
Unsure what the experience would be like (%)							
Strong concern	12.3	12.3	12.3	12.5	10.8	16.9	13.1
Moderate concern	41.0	40.3	43.1	42.0	41.0	39.4	42.6
Not a concern	46.8	47.5	44.6	45.5	48.2	43.7	44.3
Unsure if I would like the work (%)							
Strong concern	11.6	11.2	12.9	11.6	10.7	13.2	14.9
Moderate concern	30.5	31.6	26.9	36.5	29.2	30.2	31.0
Not a concern	57.9	57.2	60.2	51.9	60.1	56.6	54.1
The difficulty of the classroom training (%)							
Strong concern	10.5	10.2	11.3	10.9	9.6	12.1	13.1
Moderate concern	35.4	35.9	33.8	44.5	32.5	35.9	40.5
Not a concern	54.1	53.9	54.9	44.5	57.9	52.0	46.4
The difficulty of the on-the-job training (%)							
Strong concern	10.2	9.8	11.4	11.0	8.0	16.5	12.1
Moderate concern	32.4	31.6	34.8	38.4	29.6	33.0	42.3
Not a concern	57.3	58.5	53.8	50.6	62.4	50.5	45.6

Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 7. Training Occupation, Receipt of Support and Credentials, and Program Satisfaction by Gender and Race/Ethnicity

Experience	All AAI Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
Occupation (%)							
Manufacturing (average length: 2.8 years)	46.0	55.2	17.7	34.4	50.8	44.8	32.6
Construction (average length: 4.2 years)	23.9	29.1	7.9	40.8	21.3	25.4	13.3
Computer/IT (average length: 1.4 years)	5.4	5.0	6.5	5.3	4.3	6.9	10.0
Healthcare (average length: 1.2 years)	14.2	2.0	51.8	8.4	14.9	10.7	25.2
Other (average length: 1.5 years)	10.5	8.7	16.1	11.0	8.7	12.2	18.9
Receipt of support services (%)							
None	42.8	42.2	44.5	41.1	45.3	39.8	33.4
Financial support	35.3	37.0	30.0	36.9	33.8	37.2	39.5
Academic support	45.7	46.0	44.9	48.6	42.2	51.6	55.0
Satisfaction with primary mentor (%)							
Very satisfied	46.0	45.2	48.2	50.4	43.0	50.7	50.6
Satisfied	26.7	27.8	23.4	22.5	28.1	25.5	25.6
Somewhat satisfied	15.3	15.8	13.9	18.5	15.0	13.1	17.4
Not satisfied	12.0	11.2	14.5	8.6	13.9	10.7	6.4
Would recommend program to a family member or friend who wants to work in this field (%)	86.4	86.9	85.0	92.6	85.1	84.4	90.5
Received any degrees, certificates, or professional licenses (among those not currently registered, N=1,713)							
Yes (%)	47.7	47.3	48.5	50.7	46.1	48.9	51.3
No (%)	52.3	52.7	51.5	49.3	53.9	51.1	48.7

Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races. "Occupation/Other" includes insurance/banking and transportation, for example.

Appendix Exhibit 8. Enrollment Status, Reason for Non-Completion, and Employment, by Gender and Race/Ethnicity

Outcome	All Apprentices	Gender		Race/Ethnicity			
		Men	Women	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other
Current Status (%)							
Currently registered	32.9	38.1	16.8	35.5	33.9	28.2	31.3
Completed	47.3	42.8	61.3	45.3	46.5	49.4	51.9
Canceled/suspended	5.2	4.9	6.0	4.8	4.8	7.1	4.5
Left before completing	14.6	14.2	16.0	14.4	14.9	15.2	12.3
Reason for leaving apprenticeship before completing (among those who left without completing) (N=366)							
Lost interest in the occupation (%)	8.5	9.4	5.9	12.8	7.9	3.6	17.8
Found a better-paying job (%)	24.1	28.0	13.2	14.1	28.9	13.6	27.0
Disliked the employer or apprentice program (%)	22.5	22.9	21.3	18.5	21.3	30.0	21.0
Personal or family problems (%)	38.6	33.0	53.8	54.4	34.7	45.8	24.7
Other (%)	5.7	5.7	5.8	0.3	6.1	6.9	9.5
Reasons related to COVID-19 pandemic (%)	0.7	1.0	0.0	0.0	1.1	0.0	0.0
Employment status (among completers) (N=1,191)							
Employed, same employer that operated apprenticeship program (%)	64.8	63.8	66.9	65.0	67.1	53.9	71.1
Employed, different employer %)	25.0	25.8	23.5	24.2	23.2	31.4	26.0
Not employed (%)	10.1	10.4	9.5	10.8	9.8	14.7	2.9

Source: AAI Apprentice Survey. N=2,601.

Notes: Means are weighted for survey non-response and imputed for item non-response. Race and ethnicity were reported separately, and apprentices could select more than one race. "Non-Hispanic Other" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 9. Earnings and Employment Outcomes before and after Registered Apprenticeship Program

	Sample	Length of Follow-up (quarters)	Annual Earnings ($)				Employment Rate (%)		
			Before program	After program	Change	Percent change	Before program	After program	PP Change
Overall	3,871	9.5	35,408	52,876	17,468	49%	84%	89%	5
Gender									
Women	1,366	9.2	29,531	48,865	19,334	65%	83%	90%	7
Men	2,505	9.7	38,552	55,022	16,469	43%	84%	88%	4
Race/Ethnicity									
White	1,941	9.6	37,293	54,249	16,956	45%	84%	89%	5
Black	829	9.2	33,778	46,411	12,633	37%	84%	87%	3
Hispanic	651	9.7	34,630	51,934	17,304	50%	85%	85%	0
Other Race	450	9.4	31,937	59,533	27,596	86%	79%	93%	14
Gender and Race/Ethnicity									
White Men	1,298	9.8	41,009	55,608	14,599	36%	84%	88%	4
Black Men	505	9.2	37,701	50,138	12,437	33%	86%	87%	1
Hispanic Men	462	9.9	37,142	54,672	17,530	47%	87%	85%	–2
Other Race Men	240	9.9	30,472	62,753	32,281	106%	75%	94%	19
White Women	643	9.2	29,614	51,441	21,827	74%	84%	91%	7
Black Women	324	9.2	27,053	40,022	12,969	48%	80%	88%	7
Hispanic Women	189	9.2	28,028	44,738	16,710	60%	82%	86%	5
Other Race Women	210	9.0	33,440	56,230	22,790	68%	84%	93%	9
Age									
24 or less	966	9.8	17,867	49,947	32,080	180%	73%	88%	15
25 to 34	1,366	9.6	36,235	53,804	17,568	48%	87%	89%	2
35 or older	1,539	9.3	44,882	53,792	8,910	20%	87%	89%	2
Occupation									
Computer/IT	389	9.4	22,563	61,835	39,272	174%	72%	90%	18
Construction	250	10.2	44,709	54,734	10,025	22%	93%	86%	–7
Healthcare	718	9.0	25,638	50,441	24,803	97%	79%	91%	12
Manufacturing	1,566	9.7	41,168	51,049	9,881	24%	89%	87%	–2
Other	948	9.5	36,253	54,113	17,860	49%	79%	90%	10
Incumbency									
Incumbent Worker	2,063	9.3	44,412	51,908	7,496	17%	93%	90%	–3
New Worker	1,808	9.8	23,895	54,113	30,217	126%	72%	87%	15

Source: National Directory of New Hires. N=3,871.

Notes: PP=percentage point. Results include data through December 2020. Sample includes participants with a valid Social Security number in the QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-program quarter. "Annual earnings after program" is equal to earnings in the fifth quarter after the expected program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races.

Appendix Exhibit 10. Earnings Percentiles before and after Registered Apprenticeship Program

	Sample	Annual Earnings before Program				Annual Earnings after Program			
		p25	p50	p75	p75/p25 (ratio)	p25	p50	p75	p75/p25 (ratio)
Overall	3,871	14,409	34,338	50,029	3.5	30,856	52,032	73,764	2.4
Gender									
Women	1,366	11,296	26,820	40,833	3.6	27,152	43,744	67,052	2.5
Men	2,505	17,095	38,155	53,378	3.1	33,632	56,548	75,544	2.2
Race/Ethnicity									
White	1,941	15,369	35,710	51,987	3.4	32,460	54,500	75,460	2.3
Black	829	13,106	34,160	47,054	3.6	25,656	44,904	63,972	2.5
Hispanic	651	16,784	34,836	50,156	3.0	27,368	52,376	74,404	2.7
Other Race	450	10,855	28,270	45,119	4.2	34,532	57,428	77,856	2.3
Gender and Race/Ethnicity									
White Men	1,298	17,438	40,629	57,553	3.3	33,820	56,996	76,484	2.3
Black Men	505	18,739	38,520	52,247	2.8	32,020	50,668	66,728	2.1
Hispanic Men	462	21,180	38,264	51,566	2.4	29,620	57,864	75,976	2.6
Other Race Men	240	4,721	27,094	45,648	9.7	39,956	62,904	80,920	2.0
White Women	643	11,698	27,347	41,898	3.6	31,576	45,876	71,836	2.3
Black Women	324	9,193	24,281	37,984	4.1	18,440	37,572	54,944	3.0
Hispanic Women	189	9,726	23,308	39,039	4.0	20,036	39,564	65,328	3.3
Other Race Women	210	15,673	29,084	42,665	2.7	31,048	45,928	72,188	2.3
Age									
24 or less	966	2,890	13,234	29,788	10.3	23,940	47,508	74,308	3.1
25 to 34	1,366	19,983	34,931	49,496	2.5	31,128	53,928	73,160	2.4
35 or older	1,539	28,161	42,770	60,317	2.1	33,312	52,844	73,600	2.2
Occupation									
Computer/IT	389	2,819	15,561	38,559	13.7	37,508	59,668	85,128	2.3
Construction	250	34,715	47,446	53,728	1.5	30,856	60,752	76,216	2.5
Healthcare	718	7,741	22,180	36,373	4.7	27,704	41,944	70,340	2.5
Manufacturing	1,566	24,652	39,780	54,716	2.2	31,828	52,584	71,224	2.2
Other	948	14,346	33,350	52,979	3.7	31,048	52,976	74,376	2.4
Incumbency									
Incumbent Worker	2,063	28,807	40,758	56,731	2.0	32,024	51,100	69,516	2.2
New Worker	1,808	3,949	17,186	41,120	10.4	27,104	54,600	77,848	2.9

Source: National Directory of New Hires. N=3,871.

Notes: p=percentile. Results include data through December 2020. Sample includes participants with a valid Social Security number in the QPR, and is restricted to apprentices whose programs ended (or, for non-completers, were expected to end) by September 30, 2019, so that earnings are observed in the fifth post-program quarter. "Annual earnings after program" is equal to earnings in the fifth quarter after the expected program completion date, multiplied by four. This was pre-specified as the key earnings outcome in the AAI analysis plan. Race and ethnicity were reported separately, and apprentices could select more than one race. "White" describes non-Hispanic apprentices who reported themselves as White and no other race; "Black" describes non-Hispanic apprentices who reported themselves as Black and no other race; "Hispanic" includes all apprentices who reported themselves of Hispanic ethnicity, regardless of reported race. "Other Race" describes non-Hispanic apprentices who reported themselves as Asian, Native Hawaiian or Pacific Islander, Native American, or multiple races. The "p75/p25" outcome measures the ratio of the 75th percentile of earnings (p75) to the 25th percentile of earnings (p25).

About This Brief

With funding from the H-1B visa program, the U.S. Department of Labor (DOL) American Apprenticeship Initiative (AAI) supported 46 grantees across the country to expand registered apprenticeship into new sectors, such as healthcare, and to populations underrepresented in apprenticeships. DOL commissioned an evaluation of the AAI grants to build evidence about the effectiveness of registered apprenticeship for apprentices and employers. This brief examines the recruitment, program experiences, and post-program outcomes of AAI apprentices, with a focus on the experiences of specific populations traditionally underrepresented in registered apprenticeship programs, namely women and people of color. The key data sources include an Apprentice Survey administered to a sample of approximately 2,600 apprentices, program records from grantees, and administrative earnings data from the National Directory of New Hires.

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