Project Title

From Trained to Retained: An Analysis of Retention Outcomes for Registered Apprenticeship Program Completers

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Introduction

Summary

Retention outcomes for participants in Work Based Learning (WBL) programs are an important and emerging area of policy research. Previous research indicates that WBL programs are associated with higher participant wages; however, little research has quantified non-wage-based outcomes such as WBL participant retention rates within an industry or employer. Retention measures are valuable indicators in assessing overall WBL outcomes and the analysis of retention measures may strengthen an understanding of the WBL experience from the perspective of both participants and employers. In addition, retention outcome measures provide a starting point to further investigate the complex components of program success and related policy contexts. Looking at retention outcome patterns and trends across different variables may better equip decision-makers to examine and adjust policy levers in a variety of areas including skills matching, preparation methods, equity in the workplace, participant support, career pathway development, and overall employee and employer satisfaction.

Research Questions

After exploring the WBL data available for the state of Arkansas, our team chose to focus specifically on Registered Apprenticeship Programs. Our analysis sought to answer the following research questions:

- What are the Employer retention outcomes for Arkansas Registered Apprenticeship Program (RAP) completers?

- What, if any, demographic variables are associated with higher retention rates?

The answers to these questions are valuable to a variety of stakeholders. Apprenticeship program participants are interested in long-term retention patterns because they are seeking training programs that lead to a long-term stable career. Employers are also seeking to invest in training programs with the goal of retaining productive and engaged employees. On a state level, Arkansas is interested in growing the

workforce and job retention helps create a sustainable workforce pipeline. Sustainable workforce pipelines are also a focus of national-level policy. In fact, the Workforce Innovation and Opportunity Act (WIOA) program, a federal program that aims to support public workforce development, has recognized the importance of retention and how that serves employers. A pilot effectiveness measure that looks at *Retention with the Same Employer* is now being used by a majority of states, including Arkansas.

Literature Review

Registered Apprenticeship Program (RAP) completion is associated with positive outcomes in terms of higher earnings. For example, in one national study, RAP completers had average estimated career earnings of $240,037 more than similar nonparticipants (Reed et al., 2012). In addition to increased earnings, researchers have identified societal benefits such as increased tax revenue from higher wages and decreased spending on social safety net programs (Hendra, 2010).

Beyond earnings, job satisfaction and productivity are other important outcome measures. Research indicates that low retention negatively impacts morale, productivity, and company culture (Surji, 2013). There is also an associated business cost of high turnover from new training and onboarding, which has been previously estimated at around 20% of a worker's salary (Boushey & Glenn, 2012).

Retention is an outcome measure used to help policymakers and program evaluators consider non-wage outcomes. Unfortunately, there is a gap in research focused on retention for specific WBL programs like Registered Apprenticeships Programs. Furthermore, qualitative research on retention and completion across international RAPs highlights the importance of recognizing the multiple factors that may contribute to workplace retention (Snell & Hart, 2008). This underscores the complexity of understanding the context and individualized experiences behind retention rates.

Harris, et.al. (2001) found a combination of factors across various domains that contributed to post-completion retention, such as

- the trainee/apprentice can develop and use a wide range of skills and knowledge
- hours and demands of work are realistic and reasonable
- physical conditions of work are not too onerous
- interpersonal relationships are satisfying
- management and supervision are supportive

These domain areas could provide a useful framework for identifying potential experienced-based factors linked to retention outcomes. These qualitative factors combined with quantitative outcomes could inform future policymaking.

Accordingly, retention is emerging as an outcome measure of national policy interest. WIOA is piloting a specific effectiveness measure of *Retention with the Same Employer* as one of the three pilot ESE (Effectiveness in Serving Employers) measures required in WIOAs state performance accountability. This is one of three Effectiveness in Serving Employer (ESE) outcome measures being implemented in states to improve the effectiveness of services to employers. The measure used is outlined in Table 1 below. Survey and interview responses of WIOA administrators related to these pilot measures were

overall positive towards retention measures but also expressed concerns about reliable data collection (Spaulding, et. al., 2021).

Table 1: WIOA National Pilot Measure for Effectiveness in Serving Employees

Indicator	Definition	Numerator	Denominator
Retention with the Same Employer	Percentage of participants who exit and are employed with the same employer in the second and fourth quarters after exit.	Number of participants with the same establishment identifier (such as a Federal Employer Identification Number or state tax ID) in both the second and fourth quarters after exit. A wage record match must be available to include participants in this measure.	Participants with wage records who were employed in the second quarter after exit.

Note. From "Measuring the Effectiveness of Services to Employers: Options for Performance Measures under the Workforce Innovation and Opportunity Act". by Spaulding, S., Barnow, B., Briggs, A., Trutko, J., Trutko, A. &Hecker, I. (2021). Prepared for the US Department of Labor, Chief Evaluation Office. Washington, DC: Urban Institute

Data/Cohort

Data

The base cohort was established using the Registered Apprenticeship Sponsor Information Database System (RAPIDS), specifically the Apprentices dataset. This data provided completions and demographic data for Arkansas Registered Apprenticeship Program (RAP) participants. Employment data was obtained from the Arkansas Division of Workforce Services (DWS) Quarterly Census of Employment and Wages (QCEW) as well as the Unemployment Insurance Quarterly Wage LEHD dataset.

Cohort

The population of interest consisted of individuals completing an Arkansas Registered Apprenticeship Program (RAP) between the years of 2014 and 2018. This cohort selection allowed for full three-year analysis post-RAP completion for all participants. Primary employers were identified at the quarter of RAP completion and for twelve subsequent quarters post-completion. Additionally, individuals with more than one employer in a given quarter were flagged.

As the focus of the project was on employer retention, the number of consecutive quarters that individuals remained with the same primary employer was determined. Individuals remaining with the same employer for twelve consecutive quarters (three years) after completion were identified. Results were disaggregated by demographic groups, NAICS sector, and multiple employer status.

Descriptive Statistics and Measures

Frequency distributions were created for each demographic group and NAICS sector. Comparative tables were created for three-year retained and not retained completers. The mean number of quarters retained was derived on a sector basis.

Variable	Count (N ~ 1000) %
Race	
White	80
Non-White	20
Age	
<25	50
25-34	35
35+	15
Veteran	
Y	92
N	8
Sector	
Construction	92
Other	8

Table 1. Cohort Demographics

Key Findings

Overall, fewer individuals remained with the same employer for the years post-RAP completion than not. This trend tended to hold true across all groups of interest, with a few notable exceptions. In general, we found that approximately 43% of individuals across all groups retained their initial employment after three years (Figure 1).

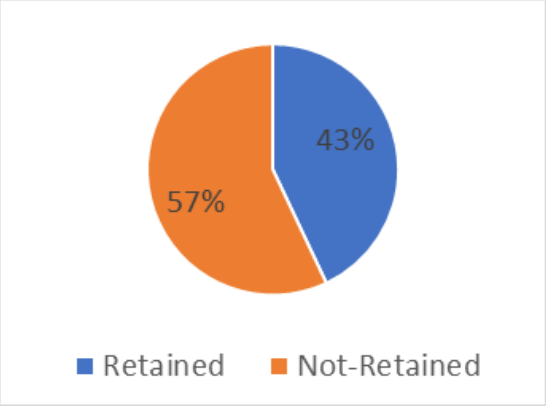

Figure 1. 3-Year Retention

Race did not appear to have a significant impact overall on retention rates (Figure 2), with Non-Whites (47% retained, N ~ 190) having a slightly higher rate of retention than Whites (43% retained, N ~ 800). However, the difference could be exaggerated due to the small sample sizes.

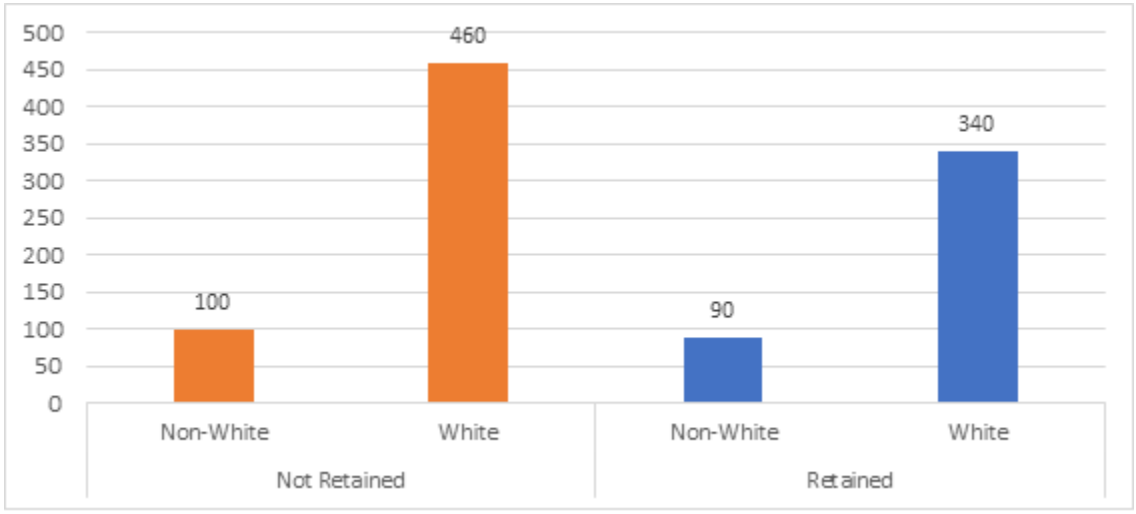

Figure 2. 3-Year Retention by Race

Similarly, there appeared to be little significant change in completion rates between age groups (Figure 3), with individuals in the 35+ age group showing slightly higher retention rates.

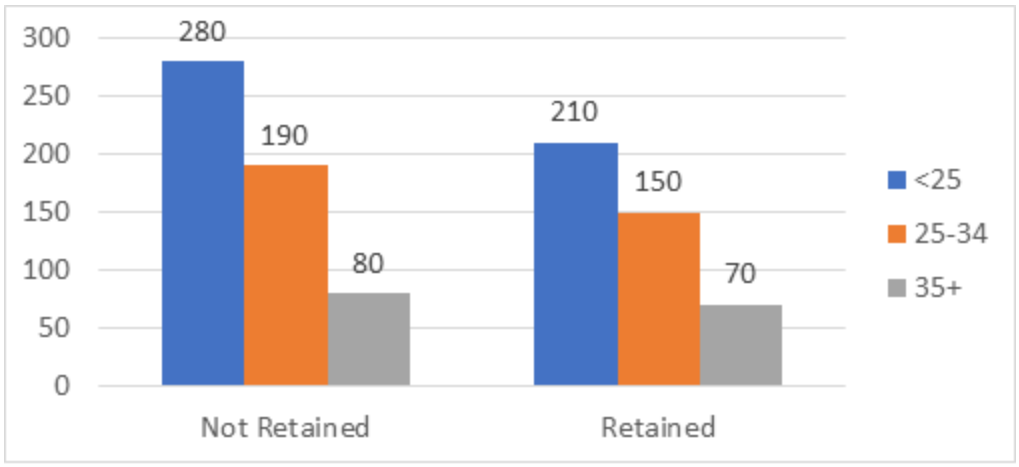

Figure 3. 3-Year Retention by Age Group

Veteran status appears to have a slight effect on retention rates (Figure 4), with individuals claiming veteran status having a 50% rate compared to non-veterans at 43%.

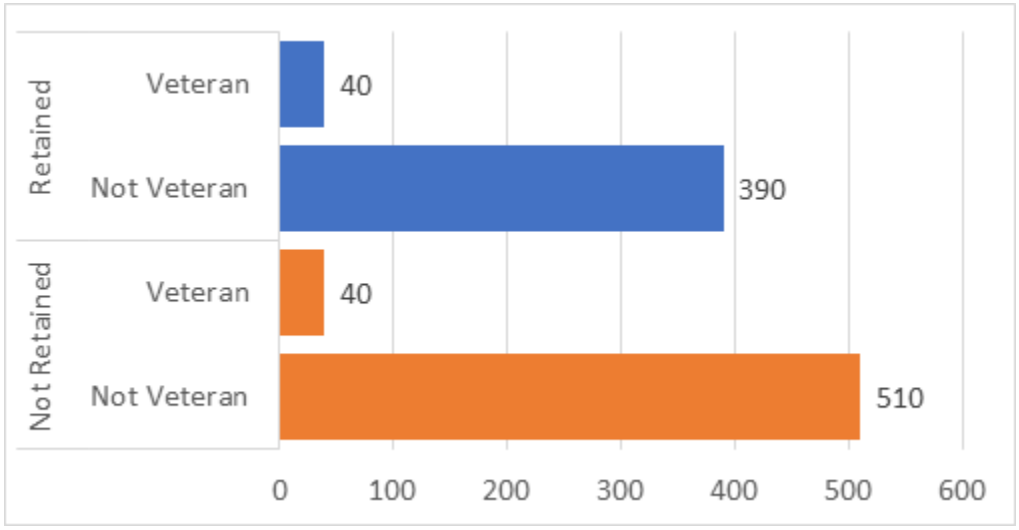

Figure 4. 3-Year Retention by Veteran Status

Job sector has a very large effect on retention rates (Figure 5), with construction jobs showing much lower rates of retention compared to jobs in other sectors. Construction jobs had a retention rate of approximately 41% (N ~ 910) while jobs in other sectors had rates of approximately 78% (N ~ 90).

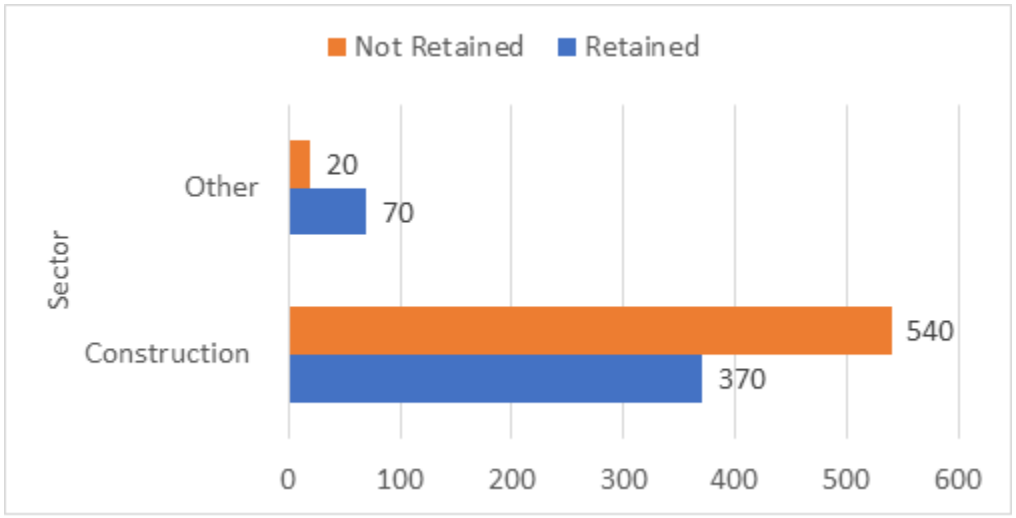

Figure 5. 3-Year Retention by Job Sector

For individuals that were not retained, those in the construction sector departed from their employer earlier than those in other sectors (Figure 6). This indicates that not only are those in construction less likely to be retained, but they are also likely to leave earlier.

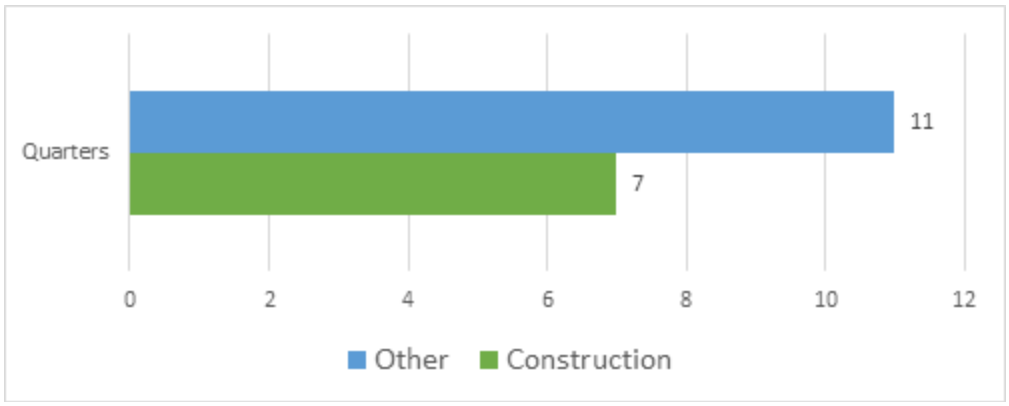

Figure 6. Quarters Retained by Sector for Non-Retained Individuals

Individuals with multiple jobs were much less likely to remain with their initial employer than those that only had a single employer (Figure 7). Note that due to low employer counts, only data regarding the construction sector was considered for analysis. Within the construction sector, we found that individuals with a single job had more than double the retention rate of individuals with multiple jobs. In particular, we found that individuals with a single job had a retention rate of approximately 48% (N ~ 640), while those with multiple jobs had a retention rate of approximately 22% (N ~ 270).

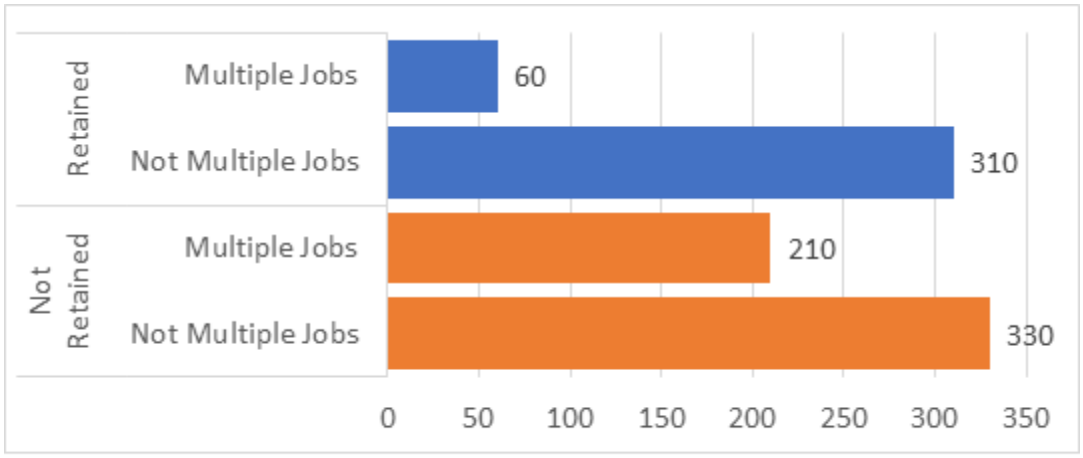

Figure 7. 3-Year Retention for Multiple Jobs

While race and age appeared to have little if any overall effect on the retention rate, we found that the combination had a larger effect than expected (Figure 8). In general, we found that Non-White individuals under 25 had a 50% retention rate, while White individuals under 25 had a retention rate of 41%. Similar results were found with Non-White individuals over 35 at 50% compared to White individuals over 35 at 42%. This could indicate that younger minority groups are more likely to remain with an employer.

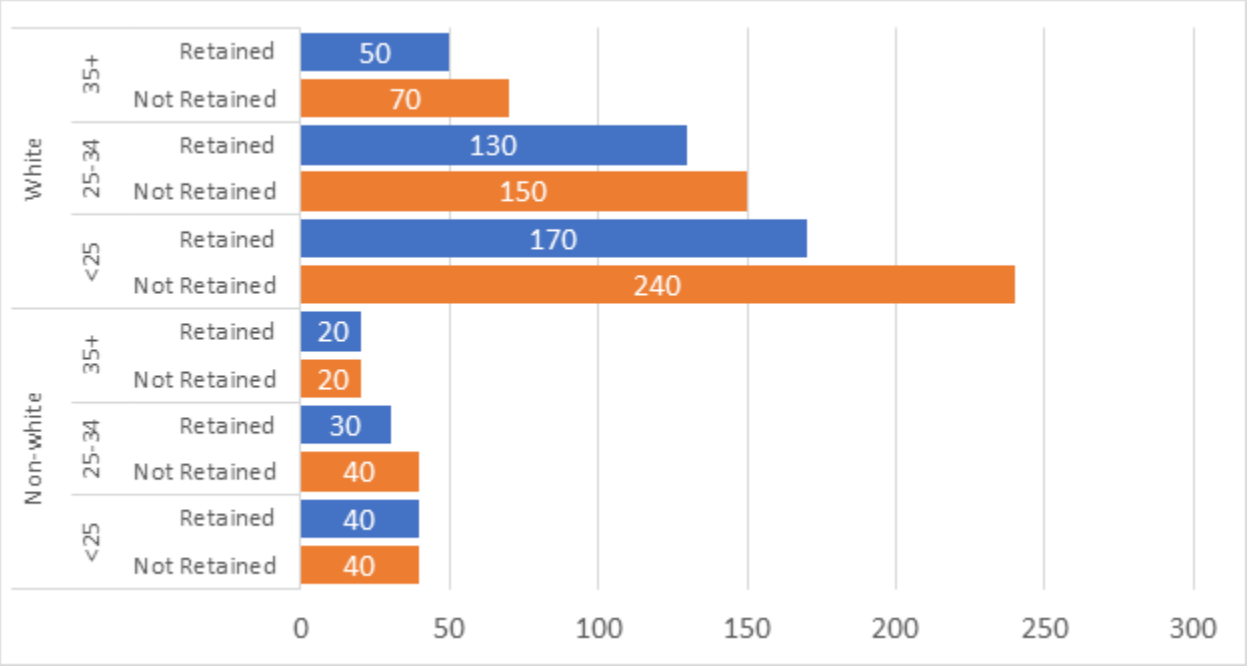

Figure 8. 3-Year Retention by Race and Age Group

Caveats

Due to the limitations of each data source, the final data set and results presented in this report contain a few caveats. Some of the inferential and data limitations that impact the scope of this analysis include but are not limited to

- Individuals that provide freelance work, popularly known as Gig workers, are not included in this data set. Employment and wages related to activities that occurred during or after the Apprenticeship program are also not included. Beyond freelance work, the UI Wage data also does not contain other classes of workers such as federal employees.
- Since data was aggregated by quarters, information on re-employment wages and employers was not available. Furthermore, major changes such as employment and enrolment status during the quarter could not be fully incorporated into the model.
- Impact of the Pandemic on the outcome of individuals completing the program in 2017-2018
- Many employers have multiple work sites leading to difficulties in adequately associating the individual with the correct work location.

- Further data limitations are related to the small sample size associated with gender, and the industries (except Construction).

Possible Extensions

There are many possibilities to extend this analysis, including expanding or changing the cohort, adding additional subgroups, or conducting more advanced machine learning analysis.

There are many benefits associated with increasing the timeframe of the analysis such as changing the cohort (i.e. 3-year vs 5-year) and the possibility of analyzing pre-pandemic vs post-pandemic outcomes. This increase could also be beneficial in gender analysis as the data was not presented at a level high enough to provide meaningful results. This is important, as future analysis could help us understand whether there are sectors with a growing number of female participants. Additional subgroup analysis could contain information such as 1) Size of Employer, 2) If Apprentice changed Employer or Industry during RAP, 3) Length of RAP, 4) If RAP was suspended, 5) Education level, and 6) Activity prior to RAP.

Beyond the subgroup analysis, this study can be extended by new cohort analysis such as Non-Registered Apprenticeship Participants and Non-completers. Finally, cluster analysis could be an additional extension to this study as a way to compare retention outcomes across different locations and sizes of employers. This clustering could even assist in creating new groups for analysis based on outcome data that may not have been previously considered.

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