Program and Labor Market Participation
2017-2019

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Key Findings

- Program participation in prison and labor market participation before and after incarceration are components of a path dependent trajectory affected by institutional and geographic contexts
- Work history in the two years prior to incarceration, age at release, sentence length, and release from partial versus total confinement were the strongest predictors of post-release employment
- Where employment prior to incarceration is a strong predictor of post-release outcomes, neighborhood-level analyses can support the department's goal to build community partnerships in areas affected by low or precarious employment and turnover from incarceration or reentry.

Background

The Washington State Department of Corrections (WADOC) provides a range of academic, vocational, and work programs to improve incarcerated individuals' employment and education opportunities when returning to the community. Similar programs adopted in other United States jurisdictions have been shown to reduce recidivism among adult correctional populations (Bouffard, Mackenzie & Hickman, 2000; Byrne, 2020).

Our goal with this report was to describe participation in prison work, vocational, and educational programs as a set of pathways situated in the broader trajectory of individuals' labor market participation before and after incarceration. This routine report is intended to address local operational needs supporting the WADOC's mission to improve lives and to "Decrease the First-Year Rate of Return to Institutions." This report is for internal program improvement and not intended to contribute to generalizable knowledge of a scientific discipline or scholarly field of study. Opportunities to support the linkage of needs and resources, responsiveness to statewide employment change, and upstream intervention are discussed.

Methods

Data Source(s). OMNI and Employment Security Department Data; Penn State Commuting Zones/Labor Markets data repository. Data include all individuals released from inmate status to the state of Washington in the three-year period between January 1, 2017 and December 31, 2019 who had served a term of confinement greater than six months and less than ten years (*n* = 15,176). Data excluded decedents, out-of-state transfers to WADOC, and individuals released out of state or to federal custody.

Analytic Approach. The relationship between program and labor market participation was approached through the following analyses:

Employment trajectories. Employment is generally path dependent such that status at a given time is influenced by a sequence of prior events. Program participation, for instance, can be affected by history of prior employment; post-release employment, in turn, can be affected by programs, history of prior employment or both. Path dependence was described in this report as the relative frequency of individual trajectories comprised of 1) the two-year period prior to incarceration, 2) time incarcerated, and 3) the second quarter following release.

A general framework for employment trajectories regards employment status as a sequence of interdependent states, each situated in community or institutional contexts (Figure 1).

Figure 1. Illustration of analytic framework.
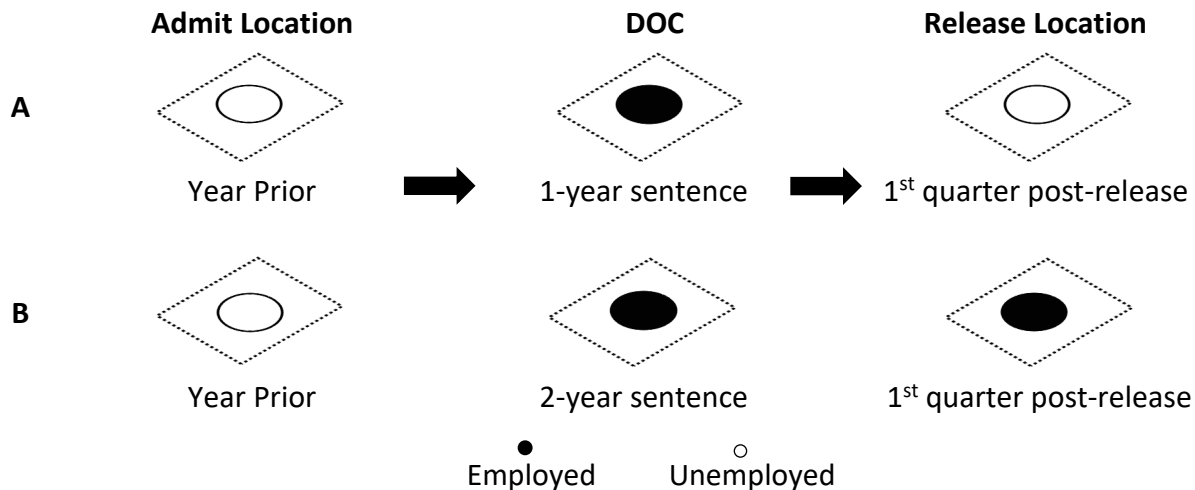
The following descriptions are provided to demonstrate possible scenarios:

Scenario A: An individual was unemployed in the two years prior to incarceration. While serving a one-year sentence, they worked for six months in a facility as a maintenance helper, and for one month on a community work crew before releasing to southeast Washington. The individual was unemployed in the second quarter after release.

Scenario B: An individual was unemployed in the two years prior to incarceration. While serving a two-year sentence, they worked on a one-year assignment as a plumber, and for seven months as an auto mechanic before releasing to southwest Washington. The individual was employed in the second quarter after release.

Program tracks. Although individuals are expected to participate in various types of programs, a combination of individual and institutional factors, such as preference and availability, can affect program tracks, where periods of confinement are typified by time spent in a particular program type. Tracks were identified through a principal components analysis of program attendance hours per year of incarceration.

Post-release employment. Employment in the second quarter after release was analyzed in relation to work history, age, sentence length, race (*racial majority* or *minority*), gender (*male* or *female*), program track, and facility and geographic area of release. As a first step, mixed effects models estimated

contextual effects of facility and geographic area of release. Tree-based machine learning models were then used as a flexible approach to handling unspecified interactions to assess variables' relative importance in predicting employment outcomes.

Results

Employment Trajectories

Individual employment trajectories were based on the following three components: 1) the two-year period in the community prior to admission, 2) time incarcerated, and 3) the second quarter after release. Relative frequencies for each of eight possible trajectories of labor market/program participation are shown in Figure 2.

Figure 2. Relative frequency of employment trajectories of the reentry population, 2017-2019 (n = 15,176).
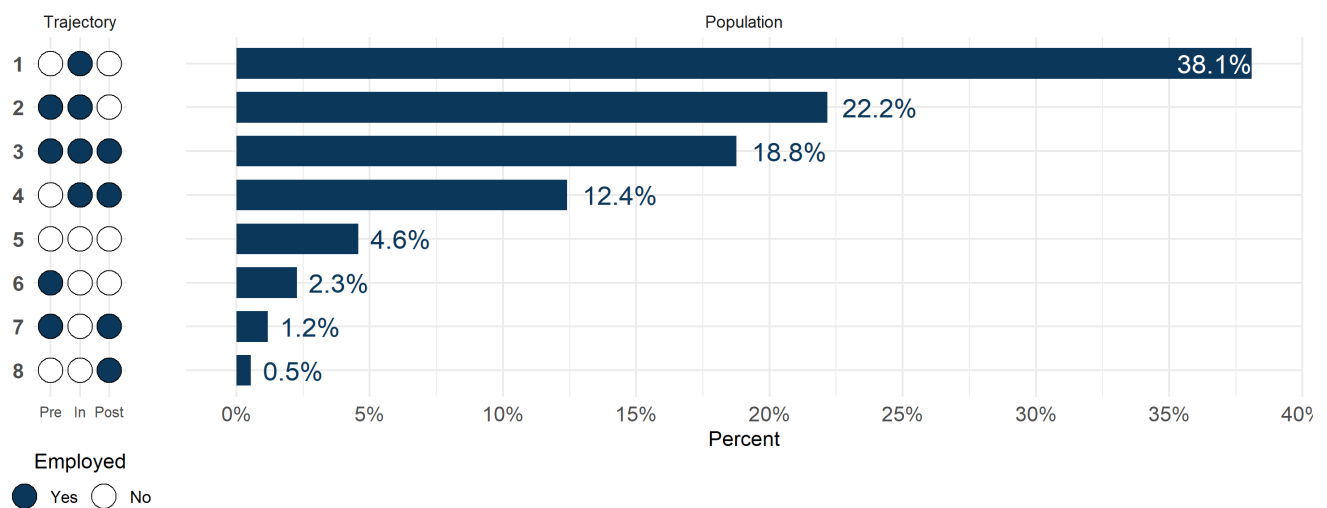
More than 90% of pathways (Trajectories 1 through 4; *n* = 13,878) included some level of participation in work, vocational, or education programs while incarcerated. The single most frequent pathway (38.1% in Trajectory 1; *n* = 5,782) included individuals who participated in programs, but who had no record of employment in the two years prior or in the second quarter after release. One in three pathways (Trajectories 3, 4, 7, and 8; *n* = 4,991) lead to employment in the second quarter after release.

Program Tracks

Although incarcerated individuals typically participated in multiple programs, each person's total participation (i.e., total program hours over their entire term of confinement), was characterized as a track based on the share of time in a predominate program type (Figure 3). Pathways to reentry included the following program tracks, in order of frequency:

Class 3 Industries. The largest group (*n* = 7,577; 49.9%) included individuals whose programming was centered on Class 3 industries, or whose work experience while incarcerated was limited to their time on work release.

Multi-Industry. These individuals (*n* = 3,613; 23.8%) were characterized by their time in multiple work programs, including those operated by Correctional Industries and the Sustainability in Prisons Project. This group's limited participation in educational programming (e.g., Basic Skills, coursework toward post-secondary credits) was comparable to that of the Class 3 group.

Learning. Individuals in this group (*n* = 2,688; 17.7%) were characterized by their time in education and vocational programs. The group's work participation was primarily in Class 3 industries.

None. Nearly 9% (*n* = 1,298) of the reentry population had no record of participating in education, work or vocational programs or work release.

*Figure 3. Work, education, and vocational program tracks for reentry population, 2017-2019 (*n = 15,176)*
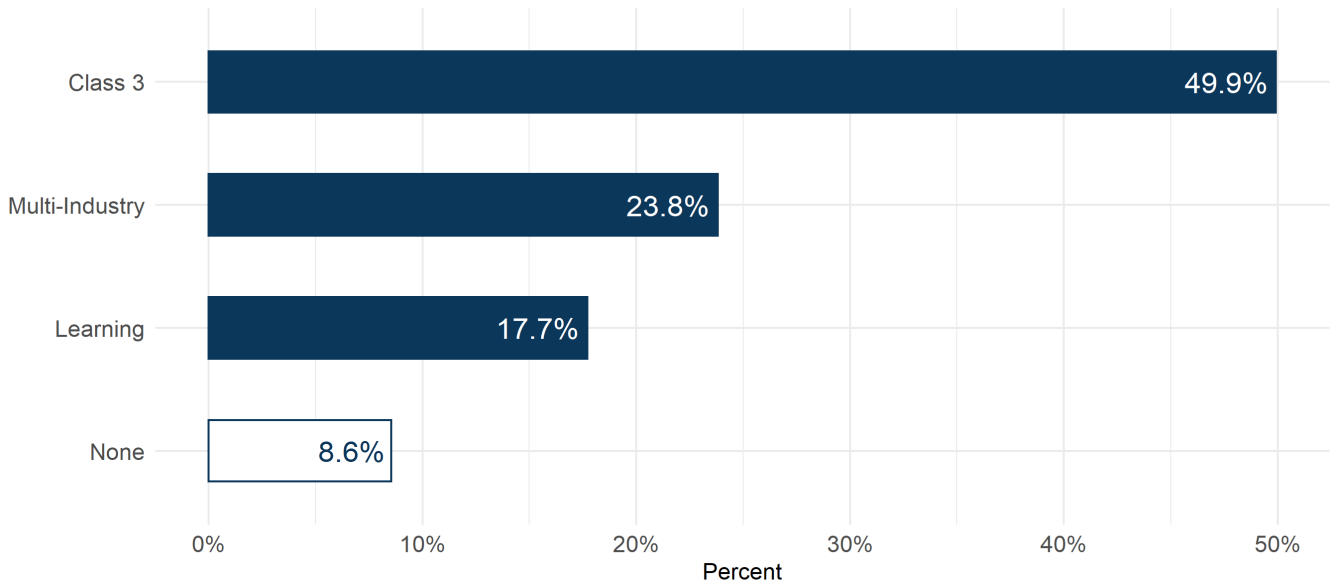
Of the eight possible trajectories of labor market/program participation, four included participation in work, vocational, or education programs while incarcerated (Trajectories 1 through 4; *n* = 13,878). Figure 4 shows the relative frequency of program tracks by reentry pathway.

*Figure 4. Relative frequency of program tracks by employment trajectory.*
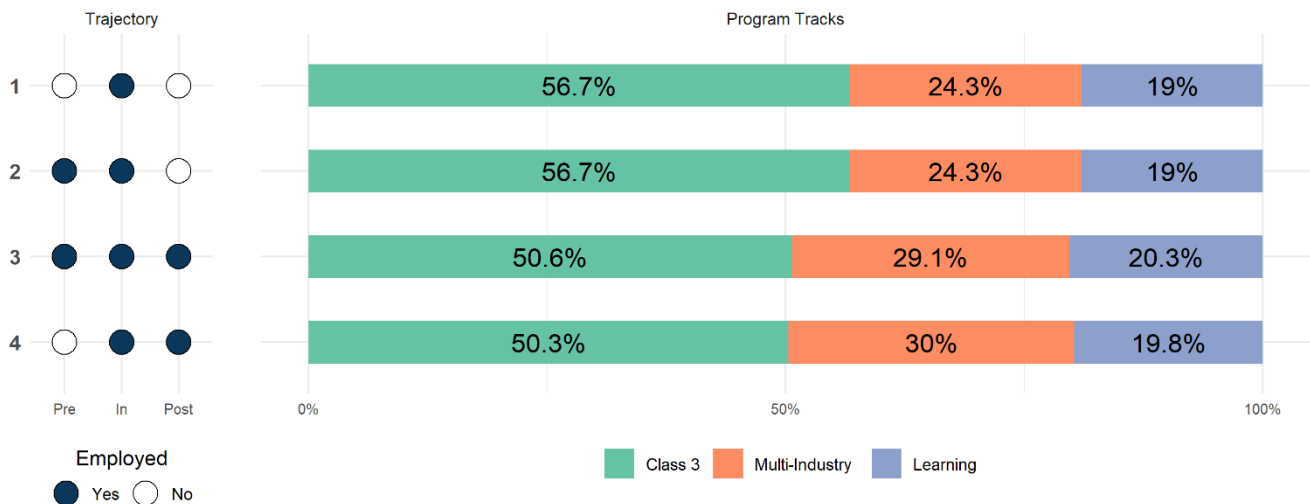
Rank-order frequency was consistent with the overall population (i.e., Class 3 Industries-oriented programming was most frequent; learning-oriented programming was least frequent). Multi-Industry and Learning program tracks were more frequent, however, in trajectories leading to post-release employment (Trajectories 3 and 4).

Post-release employment

A model predicting employment status in the second quarter after release given individuals' work history, age, term of confinement, race (*racial majority* or *minority*), gender (*male* or *female*), program track, and release facility had moderate predictive value (AUC = 0.69). The relative importance of each variable in predicting employment outcomes and local area differences in likelihood in employment are presented below.

Relative Importance. In tree-based machine learning models, a variable's relative importance does not indicate the strength or direction of the relationship between a predictor and outcome, but rather the extent to which a variable improves model performance by minimizing prediction error (Schapire, 2003). As shown in Figure 5, employment status prior to incarceration was the most informative variable in predicting whether a person would be employed in the second quarter after release.

Figure 5. Relative importance of predictors in tree-based models of employment status in second quarter after release, 2017-2019.
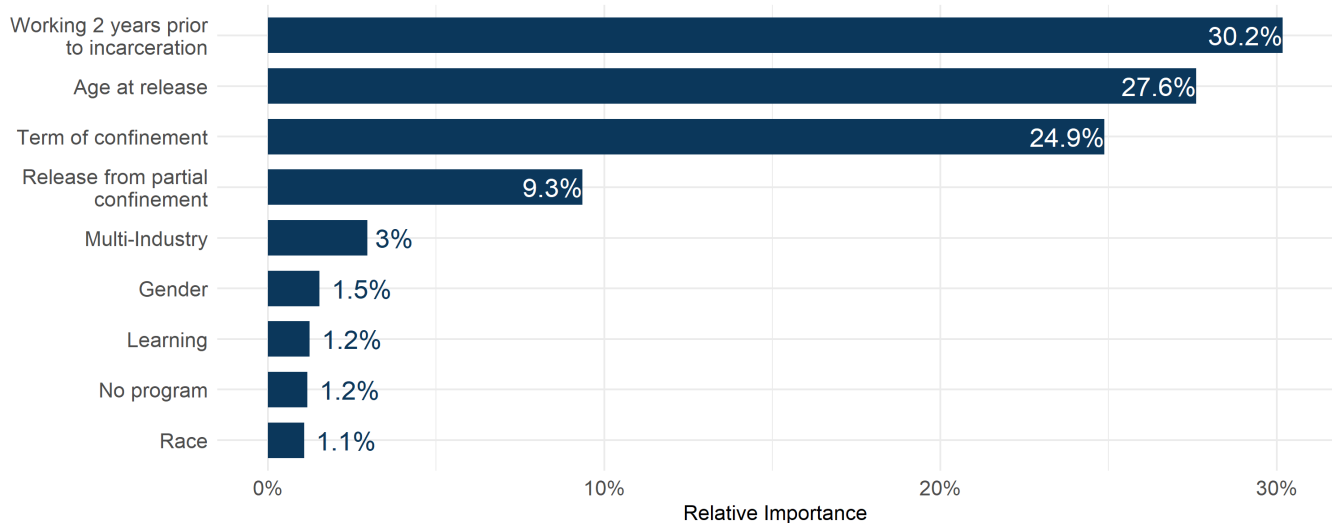

NOTE: Relative importance indicates the extent to which a variable informs prediction by minimizing error.

Other relatively influential variables included individuals' age, term of confinement, and whether they released from full or partial confinement.

Working in the two years prior to incarceration. As shown in Figure 2, 44% of labor market/program participation trajectories began with employment at some point in the two years prior to incarceration (Trajectories 2, 3, 6 and 7; *n* = 6,735). These pathways had a two times greater likelihood of leading to employment in the second quarter after release relative to those who were not employed prior to incarceration (44.9% versus 23.3% employed in the second quarter after release).

Age at release. Figure 6 shows a curvilinear association between age and probability of being employed in the second quarter after release. Employment was generally higher in the middle of the age distribution compared to the youngest and oldest age groups.

Figure 6. Probability of employment in the second quarter after release by age decile, 2017-2019.
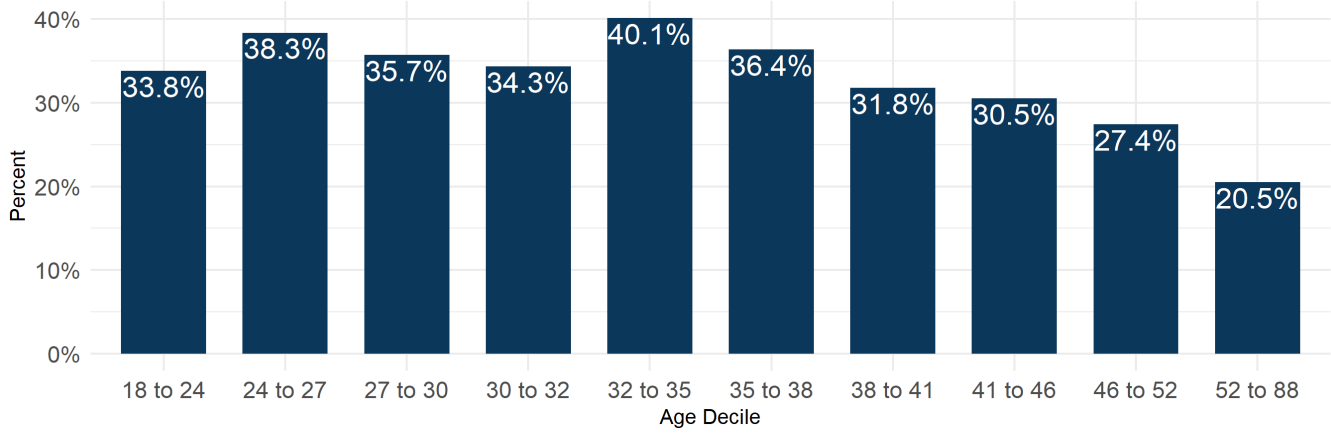
Term of confinement. Given a term of confinement ranging from six months to ten years, there was a generally positive association between term of confinement and probability of employment in the second quarter after release. The relationship plateaued, however, at six to seven years of confinement (Figure 7).

Figure 7. Probability of employment in the second quarter after release by confinement years, 2017-2019.
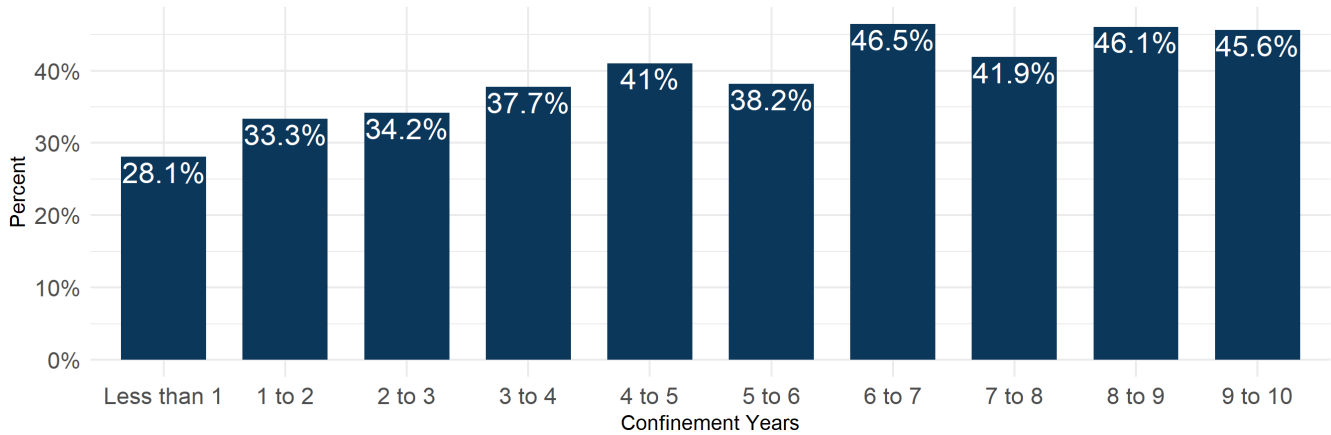
Release from partial confinement. One in four labor market/program participation trajectories returned to the community through release from partial confinement (i.e., Work Release, Graduated Reentry, Community Parenting Alternatives). The probability of employment in the second quarter after release was 1.5 times higher among these individuals compared to those who released to the community from total confinement.

Locales. The probability of employment in the second quarter after release was modeled with the assumption that averages vary across local labor market areas. Local area effects are shown in Figure 8 as the probability that post-release employment in a given labor market area was less than (-) or greater than (+) the statewide average (32.9%).

Figure 8. Probability of post-release employment higher or lower than state average, 2017-2019.
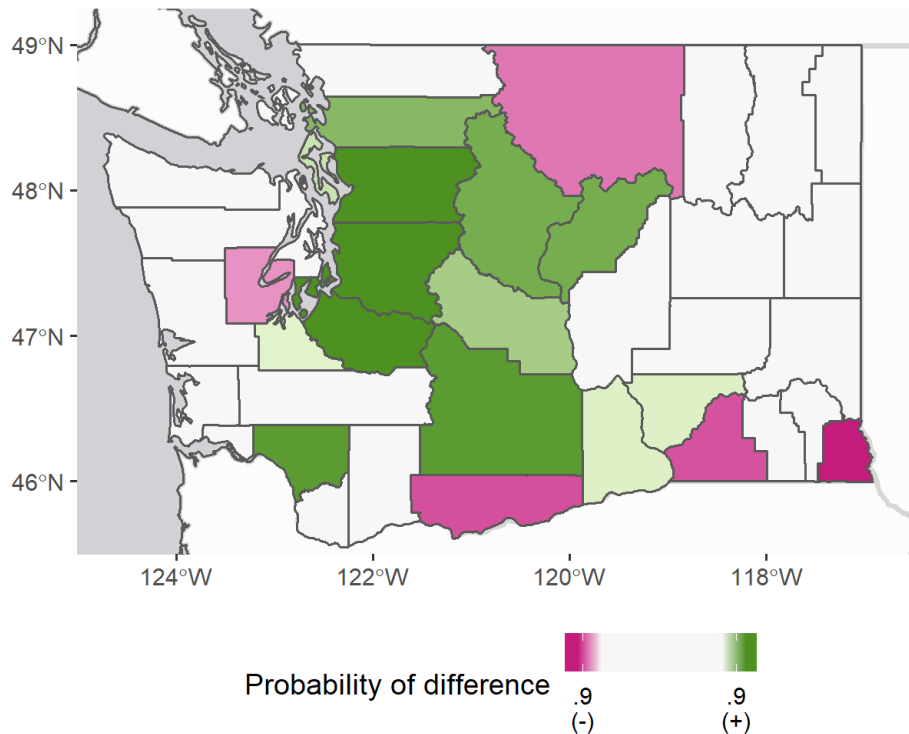
NOTE: Counties are grouped by local labor market area.[1] "Probability of difference" is the proportion of posterior distributions of odds less than (-) or greater than (+) 1.

Areas with the highest probability of post-release employment exceeding the state average included the Seattle Metropolitan Area, adjacent areas in central Washington, and Cowlitz County. Alternatively, areas with the highest probability of post-release employment being lower than the state average included Asotin, Walla Walla, Okanogan, Klickitat, and Mason Counties.

Limitations

Employment data is based on records of formal employment in the state of Washington. Individuals employed out-of-state (e.g., Clark or Asotin County residents employed in Oregon or Idaho), and informal employment are not recorded. Program participation data has the primary purpose of facilitating movements to maintain safety and may represent planned versus actual participation. Program participation may be overrepresented in work assignments with "on-call" hours.

Summary

Labor market participation prior to incarceration, program participation in prison, and employment upon return to the community are each components of a path dependent trajectory affected by institutional and geographic contexts. Effective program delivery in complex systems can be supported through analyses that attend to the following:

Individual needs and institutional resources. Recurring analysis of how individual needs and capabilities and programming resources intersect at the facility level can help avert mismatch of skills, needs and resources, and support data-driven program development.

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[1] See "*Labor-sheds for regional analysis*" at https://sites.psu.edu/psucz/

Responsiveness to regional employment change. Efforts to ensure that program design and outcomes correspond to and anticipate changes in industry mix can be supported by analyses of releases by program track and region.

Upstream intervention. Challenges in community transition are more pronounced when the places individuals are releasing to are, themselves, impacted by disparities in income and educational attainment. Where employment status prior to incarceration is a strong predictor of post-release outcomes, neighborhood-level analyses can support the department's goal to build community partnerships in areas affected by low or precarious employment and turnover from incarceration or reentry.

References

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