



# Career Pathways Descriptive and Analytical Project

## SUMMARY

The career pathways approach to workforce development emerged to help less educated workers advance to better paying jobs by earning in-demand postsecondary credentials. The approach involves articulated steps of education, training, and employment within an industry sector, combined with other services, to support participant success. In 2018, the Chief Evaluation Office (CEO) partnered with the [Employment and Training Administration](#) (ETA) to fund contractor Abt Associates to conduct the Career Pathways Descriptive and Analytical project, which included a portfolio of three studies: a meta-analysis on the impacts of career pathways program approaches; a longitudinal career trajectories and occupational transitions study; and an exploratory machine learning study. Each study fills important gaps in the evidence base.

For the project's Meta-Analysis, researchers summarized the results of 46 impact evaluations of programs which included elements of the career pathways approach. The programs examined in those studies—managed by the Department of Labor, Department of Health and Human Services, and the Department of Education, among others—were diverse across a range of dimensions, including what they offered, how they provided those offerings, who they served, and their local contexts. The meta-analysis leveraged available evaluation data to quantify causal and correlational relationships across programs and study designs.

The Career Trajectories and Occupational Transitions Study aimed to understand workers' career trajectories and transitions as they occur in the labor market, for many sectors and occupations. Researchers used data from four large nationally representative longitudinal surveys, as well as licensed data on occupational transitions from online career profiles, to examine workers' career paths and wages. Of note, the study identifies shared characteristics of “launchpad” occupations—or occupations from which workers go on to experience higher-than-average wage growth—across sectors. Click [here](#) to see the interactive *Career Trajectories and Occupational Transitions Dashboard*.

Finally, the exploratory Machine Learning Study examined the use machine learning approaches to synthesize a large body of career pathways implementation program data. It provides insights into the potential uses of this powerful tool and its evolving legal, computing, and cost environment.

This Department of Labor-funded study was a result of the annual learning agenda process. It contributes to the growing labor evidence base to inform [employment and training](#) programs and policies and addresses Department strategic goals and priorities.





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## Key Takeaways

*A Meta-Analysis of 46 Career Pathways Impact Evaluations:*

- **The career pathways approach achieved large gains in participants' educational progress and employment in the industry trained for.** The approach had small impacts on overall employment.
- **The career pathways approach increased participants' short-term earnings by a very small amount but did not meaningfully increase medium or long-term earnings.** Researchers noted that few evaluations reported earnings over more than five years, indicating an opportunity for additional research.
- **Larger educational progress impacts were associated with a staffing agency serving as a partner, or when employer engagement activities involved employer input on curricula or program design.** Programs that had a community or technical college as the lead or partner all had positive educational progress impacts, but those impacts were generally smaller.
- **Larger labor market impacts were associated with programs that had a larger share of Black participants.** Smaller labor market impacts were associated with programs that offered flexible sequencing of courses or offered tuition or other financial assistance.

*Building Better Pathways: An Analysis of Career Trajectories and Occupational Transitions:*

- **There is meaningful variation in wage growth trajectories among workers starting in mid-level occupations.** Assuming a starting wage of \$20 per hour, entrants to launchpad occupations earn about \$7.20 more per hour after 10 years compared to those who enter lower-wage-growth occupations.
- **Several characteristics distinguish launchpad occupations.** Though launchpad occupations can be found across occupational clusters, workers who enter occupations in "Knowledge" clusters such as Information Technology, Management/Finance, and Engineering/Science/Architecture see the highest average wage growth. Launchpad occupations emphasize transferrable skills such as problem solving and two-way communication. Problem solving is not just foundational for advancement, but also a skill that becomes more important as workers advance occupationally. Skills in managing people also become more important as workers advance to higher paying occupations.





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- **Distinct worker experiences are associated with wage growth.** Frequent job changes (seven or more over a 10-year period) are associated with lower wage growth. Workers that experience lower wage growth also spend fewer months working on average. In contrast, leaving a starting occupational cluster is associated with greater wage growth.
- **Wage growth varies for workers with different backgrounds or experiences who start in the same mid-level occupation.** For example, women tend to experience lower wage growth than men, and similarly, Hispanic and Black workers tend to experience lower wage growth than White non-Hispanic workers. In addition, workers with higher levels of education tend to experience higher wage growth than those without a high school diploma or equivalent. This trend also holds for workers who have a parent with a college degree: these workers experience higher wage growth than those whose parents do not have a college degree.
- **When they make an occupational transition, women and workers of color are less likely to advance to higher-level jobs,** and more likely to stay in the same occupational cluster.
- **The Career Trajectories and Occupational Transitions Dashboard is a new source of labor market information that, together with other data sources, can be used to develop programs and policies that are responsive to the real-world experience of workers.** The dashboard offers a way for users to interact with the data used in the project to explore: (1) how workers in mid-level occupations move through specific jobs and occupational clusters, and (2) how they experience wage growth over time. This information can be used by policymakers and practitioners to identify “launchpad” occupations associated with higher wage growth, look for clusters or occupational characteristics associated with wage growth, and understand where disparities exist and could be addressed.

## *Machine Learning in Workforce Development Research: Lessons and Opportunities:*

- **Machine learning can be a powerful tool in the right context.** Machine learning approaches and tools can be used to analyze large volumes of data to answer clear research questions that cannot feasibly be answered using traditional methods, though users should be cognizant of the risks and limitations involved (such as the approach’s evolving legal, computing, and cost environment).
- **Conducting a “discovery” phase would help identify if particular research questions are good candidates for workforce-focused machine learning**





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**projects** instead of traditional methods. A framework of goals and activities is offered to help yield promising opportunities to use machine learning.

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**PARTNER AGENCY:** Employment and Training Administration (ETA)

**SPONSOR:** Chief Evaluation Office

**CEO CONTACT:** [ChiefEvaluationOffice@dol.gov](mailto:ChiefEvaluationOffice@dol.gov)

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