PATHWAYS TO WORK
Evidence Clearinghouse

Synthesis Report February 2022

WHAT WORKS TO IMPROVE EMPLOYMENT AND EARNINGS FOR PEOPLE WITH LOW INCOMES?

A Meta-analysis of Pathways Clearinghouse Studies

Since 2018, the Pathways to Work Evidence Clearinghouse has conducted a systematic review of research on interventions designed to improve employment and training outcomes for individuals with low incomes. Through a comprehensive search strategy, the Pathways Clearinghouse team has examined over 8,000 manuscripts and identified research on 221 interventions for review. An earlier report in this series provides a narrative summary of these interventions and the research examining them (Rotz and Langan 2022). In this report, we use meta-analysis to analyze the findings catalogued by the Pathways Clearinghouse. This meta-analysis allows us to investigate:

(1) **What works?** What interventions work to improve the employment and earnings of people with low incomes?

(2) **For whom?** Do the interventions work best for particular groups of people with low incomes? If so, which groups?

(3) **Under what circumstances?** In what contexts do interventions appear to be most successful?

Key takeaways from the analysis include:

- **On average, the interventions assessed by the Pathways Clearinghouse improved outcomes.**
  - Interventions had the biggest effects on short-term employment and education or training attainment.
  - The improvement in outcomes was, on average, equivalent to an increase in earnings of about $1,000 per year.

What is the Pathways Clearinghouse?

People who run programs for job seekers with low incomes need evidence on the interventions and strategies that can help their clients succeed in the labor market. Others need this evidence, too – including those making decisions on how to best allocate public resources and those seeking to expand the existing knowledge base.

To provide reliable, accessible information about what works to help job seekers find and keep gainful employment, the Office of Planning, Research & Evaluation at the Administration for Children & Families launched the Pathways Clearinghouse. The Pathways Clearinghouse is built on a foundation of rigor, credibility, and accessibility.

The Pathways Clearinghouse identifies interventions that aim to improve employment outcomes, reduce employment challenges, and support self-sufficiency for people with low incomes. The Pathways Clearinghouse systematically evaluates and summarizes the evidence of their effectiveness.

How can decision makers use this synthesis report?

Policymakers, practitioners, and researchers can use this report to understand the overall evidence on interventions' effectiveness, for whom interventions work best, and which intervention and context features are related to intervention success.

- **Twenty-nine of 144 individual interventions show evidence of improving participants' average outcomes.**
  - Most other interventions had results in a positive direction but these results were not statistically significant.
- **The Pathways Clearinghouse classified interventions according to the primary, or main, service they offered. Interventions in four of these service categories, on average, improved outcomes: education and training, work and work-based learning, employment services, and incentives and sanctions.**
  - The largest effects were found among interventions focused on education and training, work or work-based learning, and employment services. On average, these interventions improved earnings by about $1,400, $1,300, and $1,200 per year, respectively.
  - Interventions focused on case management or other supports, or on helping workers maintain employment, did not improve outcomes, on average.
- **The Pathways Clearinghouse also classified interventions based on all services offered, using a set of 26 common employment and training services. Several specific services were associated with larger intervention effects, especially transitional jobs, occupational or sectoral training, subsidized employment, education opportunities, soft-skills training, and work experience.**
- **Interventions had larger effects when participation in services was voluntary and when an intervention was implemented by a private provider (such as a nonprofit).**
- **Interventions tested in samples in which a greater share of participants identified as Black or Hispanic had smaller effects on employment.**
  - Other characteristics of study participants, including gender, educational attainment, and eligibility for cash assistance, were not associated with intervention success.

Statistical methods to determine what works

To conduct this research synthesis, we used rigorous quantitative techniques known as meta-analysis and meta-regression. Meta-analysis involves analyzing the results of multiple prior analyses. It produces average estimates of impacts, with more weight given to more precise estimates. This averaging is valuable because each impact estimate might have flaws, and averaging findings across studies produces a more reliable estimate of the effect than that of any individual study. Meta-regression is a tool used in meta-analysis to examine how different factors are related to intervention impacts, while accounting for other factors. These techniques allowed us to see which characteristics of interventions—such as the types of services offered—and which characteristics of studies—such as the demographic characteristics of the study population—had the strongest links to improving employment, earnings, and related outcomes for people with low incomes (Borenstein et al. 2009).[1]

We conducted meta-regression in two stages to examine the intervention, study, and outcome characteristics associated with larger or smaller effect sizes. First, we examined each characteristic individually, comparing effects with and without that characteristic. For example, we compared effects for interventions delivered by public organizations to those delivered by private organizations to see if, on average, publicly and privately delivered interventions had different effects. Second, we estimated meta-regression models holding several other characteristics constant. For example, we compared effects of programs provided by public and private providers that provide similar services and serve similar populations. We estimated five regressions, one examining the set of all outcomes, and one each for our four main outcomes: earnings, employment, public benefit receipt, and education and training attainment. The full results of these regressions are available in Appendix B, Tables B.2 and B.3.

[1] Further details on the methods used in this report are available at the end of the report and in Appendix A.

The Pathways Clearinghouse systematic review

The Pathways Clearinghouse is powered by a systematic review of relevant research. Systematic reviews make it easier to learn from and apply research findings by identifying the most rigorous and relevant evidence and summarizing it in a variety of ways. The goal of a systematic review is to take stock of all existing evidence on a particular question or topic by (1) adopting a transparent, comprehensive search strategy to identify studies and (2) applying predetermined criteria to rate the quality of the evidence presented in each study and to characterize findings in a consistent way. Trained reviewers identify, categorize, and assess studies and summarize their findings in order to convey concisely all usable information to diverse audiences.

The Pathways Clearinghouse includes studies that:

1. Quantitatively estimated an intervention's impacts by comparing outcomes observed among a group of individuals who received an offer of intervention services—the intervention group—and a group that did not—the comparison group;
2. Examined the effects of an intervention for people ages 16 and older with low incomes;
3. Estimated the effects of an employment or training intervention, implemented in the United States or Canada, on outcomes related to employment or earnings;
4. Were published or made publicly available in 1990 through 2019 and in English.*

In the Pathways Clearinghouse's first searches for relevant research, which took place in the fall of 2019 and summer 2020, the review team gathered over 8,000 manuscripts. Trained staff screened the manuscripts to identify eligible studies. In total, 360 manuscripts contained research eligible for review. Those manuscripts included 315 studies. (Multiple manuscripts may describe results from the same study, such as with an interim and final report on the same evaluation.) Trained reviewers then assessed the studies by using predetermined criteria, with the central goal of determining the extent to which findings from the studies could be considered to reliably represent the impact of the intervention.** Of the 315 studies, reviewers assigned 195 a quality rating of high or moderate, meaning that we can be at least somewhat confident in the study findings. The high- and moderate-rated studies represented a total of 147 unique interventions.

The meta-analyses described in this report draw on 1,820 findings from 191 studies of 144 interventions. Some studies, findings, and interventions were omitted because they lacked key information needed for the analysis (see Appendix A for details).

* Although this report summarizes studies available through 2019, the Pathways Clearinghouse continues to review new studies as they become available.

** For more details on the criteria used to assess outcomes, studies, and interventions, see the Pathways Clearinghouse protocol (Rotz et al. 2020). For more details on the outcomes, studies, and interventions catalogued by the Pathways Clearinghouse, see Rotz and Langan (2022).

What are effect sizes, and why do we use them?

Effect sizes make meta-analysis and meta-regression possible. The effect size serves as a standardized unit we can compare to other, similarly standardized units. For example, effect sizes enable us to compare an increase in employment to a decrease in public benefit receipt by putting the measures in comparable terms. For this analysis, the Pathways Clearinghouse used the measure of effect size known as Hedges' *g*, or the standardized mean difference (Hedges and Olkin 1985; see Appendix A for details). The effect size is larger when an impact is larger.[2]

[2] A study's effect size for an intervention is calculated by dividing the study's impact of an intervention by a measure of the within-study variability of the outcome to which that impact corresponds. The same impact will correspond to a larger effect size if the outcome varies less across program participants in the study. Outcomes vary less across program participants in the study if most values are similar to the average value. This is more likely to occur if study participants are fairly similar to one another or for outcomes measured over a shorter period. For example, annual earnings tend to vary more than weekly earnings for the same group of participants.

The Pathways Clearinghouse aimed to explore interventions that help people become more economically self-sufficient; therefore, it considers decreases in public benefit receipt to be favorable. In contrast, increases in all other outcomes catalogued in the Pathways Clearinghouse are considered favorable. To make the effect sizes comparable, decreases in public benefit receipt are represented as positive effect sizes (and increases as negative effect sizes).

What outcomes did we look at?

The Pathways Clearinghouse team reviewed each intervention's impacts on 10 groups of labor market outcomes, called outcome domains. Outcome domains are defined by type of outcome—employment, earnings, public benefit receipt, and education and training—and time period—short-term, long-term, or very long-term.[3] There is a single education and training domain that includes outcomes assessed any time after the intervention. For example, a person's current employment status and the number of weeks worked over the past year are both employment outcomes, whereas hourly wages and monthly earnings are both earnings outcomes.

How did we categorize interventions for analysis?

The Pathways Clearinghouse team broke each intervention down into its component services, using a list of 26 common employment-related services (see Appendix Table B.1). The team selected the 26 services based on those catalogued in related systematic reviews and expert feedback. All interventions included at least one service, and most included several. The average intervention in the Pathways Clearinghouse involved six services, including a mix of services aimed at increasing participant skills, helping participants find or retain jobs, and assisting participants in overcoming or managing barriers to employment (see Rotz and Langan 2022 for further details).

To provide richer information about services and to group together similar interventions, the Pathways Clearinghouse team also catalogued the primary service that was most central to each intervention and grouped these into six major categories (see box). Each intervention was assigned to exactly one primary service.

Intervention categories based on primary service

- **Case management or other support** interventions focus on assessing clients' needs, linking clients to other available services, and providing supports to overcome barriers, such as substance abuse counseling or classes to promote financial literacy.
- **Education and training** interventions focus on providing or supporting an individual through education and training programs.
- **Employment retention services** focus on helping employed people maintain their jobs and progress in their careers.
- **Employment services** help people prepare for, find, apply to, and obtain jobs.
- **Incentives and sanctions** interventions focus on providing, or taking away, cash or noncash benefits, such as public assistance benefits or funding for child care.
- **Work and work-based learning** interventions focus on providing clients with work and on-the-job learning opportunities.

[3] The Pathways Clearinghouse defines short-term as within 18 months after study participants were randomly assigned or first offered services, long-term as between 19 and 60 months (5 years) thereafter, and very long-term as more than 60 months thereafter.

What works to improve the employment and earnings of people with low incomes?

On average, the interventions in the Pathways Clearinghouse improved outcomes by a modest amount. Across all interventions included in the analysis, the average effect size was 0.047 and was statistically significant (see box).[4] This effect is equivalent to an increase in annual earnings of about $1,000 or an increase in employment of around 2 percentage points.[5] Typically, an effect size of around 0.25 standard deviations is considered to be a large effect in social policy (Lipsey et al., 2012) and labor market research (Card et al., 2018). Therefore, although the typical intervention improved outcomes, these improvements were relatively small.

What is statistical significance?

The Pathways Clearinghouse considers statistical significance to be support for the existence of an effect of an intervention. The Pathways Clearinghouse considers an effect estimate statistically significant if the *p*-value of a two-sided hypothesis test of whether an effect is equal to zero is less than 0.05. A *p*-value is the probability of observing an effect estimate as large or larger than the one observed, if there were no actual effect.

What is a 95 percent confidence interval?

An effect size represents our best guess as to the impact of an intervention, but the true effect might be somewhat higher or lower. The 95 percent confidence interval shows a range of plausible values. We can say that we are 95 percent confident that a true effect size lies within this range.

Which interventions improve outcomes?

In total, and combining intervention effects across all outcomes recorded by the Pathways Clearinghouse, 29 interventions improved the average outcomes of participants. Although most intervention-level averages were not statistically significant (Appendix Table B.4), and two interventions had statistically significant and negative average effect sizes (meaning that, on average, these interventions worsened outcomes), the Pathways Clearinghouse found 29 interventions with statistically significant and positive average effect sizes (Figure 1).[6] This means that, on average, these 29 interventions improved outcomes.

The following six interventions had effect sizes close to or greater than 0.25, a typical threshold used to categorize an effect size as large. Each was examined in one study that received a high or moderate study quality rating:

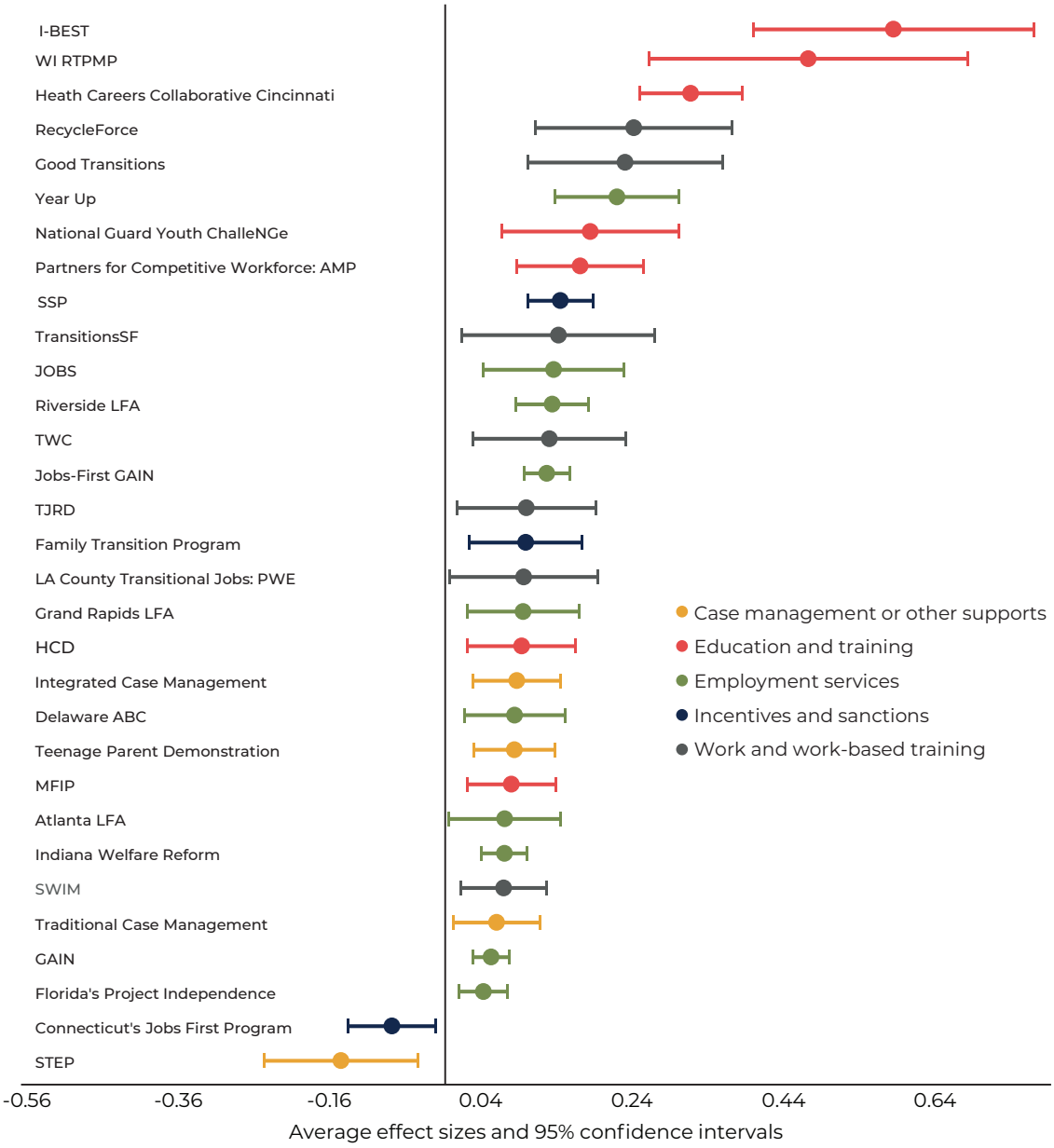
- **Integrated Basic Education and Skills Training** (I-BEST; average effect size of 0.592), a program that helped workers develop basic skills and attain occupational credentials.
- **Wisconsin Regional Training Partnership Manufacturing Pathway** (average effect size of 0.479), a program that offered a variety of trainings and other supports to help participants find employment in the manufacturing field.
- **Partners for a Competitive Workforce: Health Careers Collaborative of Greater Cincinnati** (average effect size of 0.324), a program that offered a variety of trainings and other supports to help participants find employment in the healthcare field.
- **RecycleForce** (average effect size of 0.249), a program that sought to help people who were formerly incarcerated reenter the workforce by placing them in transitional jobs at social enterprises, where they received job training, work experience, and support from peer mentors.

[4] Estimates in this synthesis report might differ from those in Stanczyk et al. (2021) because that report excludes some outcomes given its focus on understanding intervention effects during economic recessions and recoveries.

[5] Unless otherwise indicated, all dollar values have been adjusted to 2018 dollars based on the Consumer Price Index. Effect sizes have been converted to impacts on annual earnings, annual public benefits received, and employment rates based on standard deviations from the Current Population Survey (see Rotz et al. 2020). The standard deviation of earnings among low-income workers was estimated as $20,917, the standard deviation of public benefits was estimated as $2,751, and the standard deviation of employment was estimated as 41 percent.

[6] An intervention's average effect size provides a summary measure of its effectiveness but might mask substantial variation across outcomes. For example, an intervention might improve earnings but worsen public benefit receipt, resulting in an average effect size near zero.

Figure 1. Interventions with statistically significant average effect sizes



Source: Pathways Clearinghouse database.

Notes: Average intervention effects are shown as circles; 95 percent confidence intervals are shown as lines. When this line does not include zero, which is shown by the vertical line, the average effect size is statistically significant at the 0.05 level. If the colored line is completely to the left of the vertical line, the evidence suggests that an intervention has an unfavorable average effect. If the colored line is completely to the right of the vertical line, the evidence suggests that an intervention has a favorable average effect. Colors indicate the primary service of each intervention, as shown in the legend. For details and effects for all interventions, see Appendix Table B.4.

Delaware ABC = Delaware's A Better Chance Welfare Reform Program; GAIN = Greater Avenues for Independence Program; HCD = Human Capital Development Program; Health Careers Collaborative Cincinnati = Partners for a Competitive Workforce: Health Careers Collaborative of Greater Cincinnati; I-BEST = Integrated Basic Education and Skills Training; JOBS = Portland Job Opportunities and Basic Skills Training Programs; LA County Transitional Jobs: PWE = Los Angeles County Transitional Subsidized Employment Program: Paid Work Experience; LFA = Labor Force Attachment Program; MFIP = Minnesota Family Investment Program (as compared with Minnesota Family Investment Program Incentives Only); Partners for Competitive Workforce: AMP = Partners for Competitive Workforce: Advanced Manufacturing Partnership; SSP = The Self-Sufficiency Project; STEP = Success Through Employment Preparation (as compared to Transitional Jobs Program at the Transitional Work Corporation); SWIM = The San Diego Saturation Work Initiative Model; TJRD = Transitional Jobs Reentry Demonstration; TWC = Transitional Jobs Program at the Transitional Work Corporation (as compared to Success Through Employment Preparation); WI RTPMP = Wisconsin Regional Training Partnership Manufacturing Pathway.

- **Good Transitions** (average effect size of 0.238), a program that served noncustodial parents with low incomes by providing subsidized employment combined with case management and training to help them connect to stable employment.
- **Year Up** (average effect size of 0.227), a program that offered training and work experience in the information technology and investment operations fields to young adults to help them access careers with good pay and advancement opportunities.[7]

Which services are associated with better outcomes?

One way to understand the types of services associated with better outcomes is to examine the primary services provided by the interventions that have statistically significant average effects. These 29 interventions used a variety of approaches to service provision: 10 focused on employment services, 7 focused on work and work-based learning, and 7 focused on education and training. Interventions focused on case management or other supports and those focused on incentives and sanctions were also represented. None of the average effect sizes for the interventions focused on employment retention services were statistically significant.

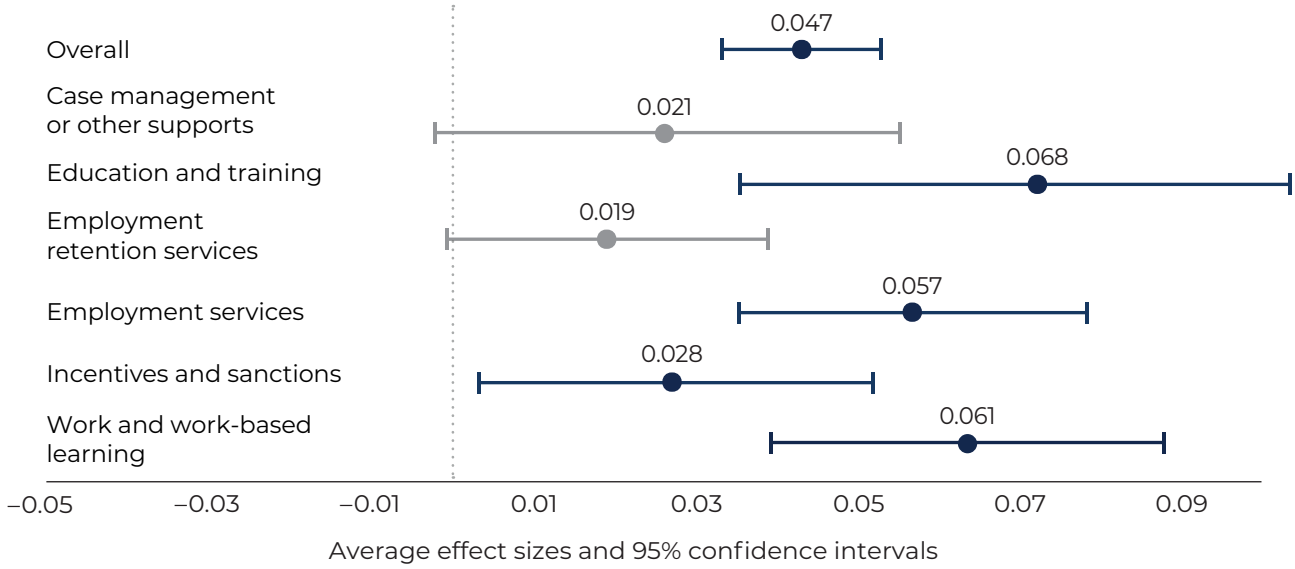
Another way to examine what works is to consider average effect sizes across all interventions with the same service or primary service. Figure 2 shows these averages for interventions in each primary service group. In contrast to Figure 1, which shows the specific interventions that improved average outcomes, this figure focuses on showing the average effects of interventions by primary service. This helps us learn more about the average ability of a particular primary service to improve outcomes. It does not mean that any intervention using this primary service will or will not be effective, but it helps us learn what kinds of primary services tend to improve outcomes. For example, on average, interventions with a primary service of case management or other supports tend to produce small and statistically insignificant effects. However, the Integrated Case Management intervention (which has case management as its primary service) improved outcomes by 0.095 standard deviations, which is equivalent to an increase in annual earnings of nearly $2,000. Therefore, we would conclude that some interventions focused on case management or other supports improve outcomes, though the average intervention of this type does not.

On average, interventions focused on work and work-based learning, employment services, education and training, and incentives and sanctions improve participant outcomes. Interventions in the education and training group have the largest average effect size (0.068), which translates into an increase in annual earnings of about $1,400 for study participants. Interventions focused on providing work and work-based training (0.061) and employment services (0.057) have similar effect sizes, equivalent to increases in annual earnings of around $1,300 and $1,200, respectively. All three averages are statistically significant. Average effects for the incentives and sanctions group are somewhat lower but remain statistically significant. Within this group, the average effect size (0.028) is equivalent to an increase in annual earnings of about $600. The average effect sizes associated with interventions focused on case management or other supports (0.021) and employment retention services (0.019) are smaller still, and not statistically significant. This means that there is less evidence that the typical interventions using these primary services improved people's outcomes.

Patterns are somewhat different for some types of outcomes (Appendix Tables B.3 and B.5). In particular, for each primary service, the average effect on earnings outcomes was positive and statistically significant. That is, there is strong evidence that each type of intervention improves earnings, even though some types do not improve outcomes across other domains. For outcomes measuring public benefit receipt, only interventions focused on employment services and work and work-based learning demonstrate evidence of improving outcomes, on average. Finally, there is strong evidence that education and training-focused interventions improve education and training outcomes (which they are explicitly designed to do), though most other types of interventions do not, on average.

[7] 95% confidence intervals for average effects by intervention are provided in Appendix B.

Figure 2. Average effects by primary service (144 interventions)



Source: Pathways Clearinghouse database.

Notes: Average intervention effects are shown as circles; 95 percent confidence intervals are shown as lines. When this line includes zero, which is shown by the vertical dotted line, the average effect size is not statistically significant at the 0.05 level and the line is shown in gray. When this line does not include zero, the average effect size is statistically significant at the 0.05 level and the line is shown in dark blue. If the colored line is completely to the left of the dashed line, the evidence suggests that an intervention has an unfavorable average effect. If the colored line is completely to the right of the dashed line, the evidence suggests that an intervention has a favorable average effect. Estimates are weighted averages and do not adjust for other intervention characteristics.

For details, see Appendix Tables B.5 and B.6.

Interventions focused on case management or other supports and those focused on employment retention services have smaller effects than other interventions. Average effect sizes for these interventions are smaller than average effect sizes for the typical intervention included in the Pathways Clearinghouse (Appendix Table B.6). The pattern for case management interventions holds in meta-regressions controlling for a wide range of other intervention, study, and outcome characteristics (Appendix Tables B.2), meaning that the differences remain when we account for many potential differences in the characteristics of participants served, the context in which interventions were provided, and the way study authors assessed intervention effectiveness. For example, the meta-regressions predict that, holding many other factors constant, interventions focused on case management or other supports have an effect equivalent to increasing earnings by about $750 less per year than interventions focused on work and work-based learning. However, looking at effects on specific outcomes shows this pattern is mostly driven by differences in the effects of interventions on employment, and not effects on earnings, public benefit receipt, or education and training outcomes.

Several specific services are associated with intervention effectiveness. In addition to identifying the primary service for each intervention, the Pathways Clearinghouse tagged each intervention based on all of the services it provided. To understand whether individual services are associated with larger intervention effects, for each service, we compared the average effect size of interventions including that service to the average effect size of interventions not including that service (Table 1). This analysis shows the services most commonly associated with the more effective interventions and can inform future choices of components to consider adding or removing from a program.

Several specific services are associated with intervention effectiveness. In particular, three services related to work and work-based learning were related to intervention effectiveness (work experience, subsidized employment, and transitional jobs); the inclusion of each service was associated with an increase in effect size of at least 0.024 (equivalent to around $500 in income per year). Interventions including education, training, and occupational and sectoral training also have larger effect sizes (differences equivalent to a boost in annual income of around $600, $400, and $800, respectively). Soft skills training, an employment service, was also associated with significantly larger effect sizes. Conversely, interventions including on-the-job training or employment coaching had significantly smaller effects than those that did not include these services.[8]

Table 1. Differences in effect sizes for interventions with and without specific services

	Difference in effect sizes	Equivalent change in annual earnings
On-the-job training	-0.025***	-$520
Case management	-0.023*	-$475
Employment coaching	-0.015***	-$304
Financial incentives	-0.014*	-$299
Employment retention services	-0.014**	-$297
Health services	-0.011*	-$233
Unpaid work experience	0.001	$30
Substance use disorder treatment and mental health services	0.002	$32
Sanctions	0.003	$59
Financial education	0.005	$115
Job development or job placement	0.008	$165
Job search assistance	0.017*	$363
Training	0.018***	$384
Subsidized employment	0.023***	$484
Soft-skills training	0.023***	$486
Work experience	0.024***	$504
Education	0.029***	$617
Occupational or sectoral training	0.039***	$821
Transitional jobs	0.060***	$1,250

Source: Pathways Clearinghouse database.

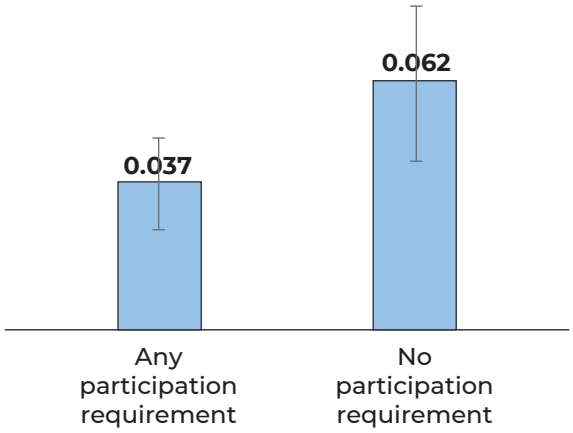
Notes: Average intervention effect sizes for interventions with and without the specified service. Estimates are differences in weighted averages and do not adjust for other intervention characteristics. Table omits services provided or not provided in fewer than 10 studies.

*/**/*** Statistically significant at the 0.10/0.05/0.01 levels.

[8] Although we estimated meta-regressions including indicators for receipt of each of 26 services, the large number of explanatory variables in these regressions led to poor statistical precision. Therefore, we have not discussed these estimates.

What other intervention characteristics are associated with better outcomes?

Figure 3. Average effects of interventions with and without participation requirements



Source: Pathways Clearinghouse database.

Notes: Difference between groups is -0.025 (p = 0.014). Estimates are weighted averages and differences in weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.6.

Interventions with a participation requirement have smaller effects. People were required to participate in many of the interventions catalogued by the Pathways Clearinghouse, especially those serving current public benefit recipients. Making participation in an intervention mandatory might increase its effects by increasing intervention participation. But mandatory participation could reduce effectiveness if participation requirements lead individuals to receive services that are less appropriate for them than they would otherwise select, or if individuals receiving mandatory services have different attitudes toward or interest in the services provided.

The data suggests that interventions with a participation requirement have lower average effect sizes than those without such a requirement (Figure 3). Interventions with a participation requirement had an average effect size of 0.037, significantly lower than the average effect size for interventions without such a requirement. The difference was similar to an intervention having a $500 smaller effect on annual earnings. This pattern holds in meta-regressions controlling for other intervention characteristics, and for characteristics of intervention participants (including whether participants were eligible to receive cash assistance), though the difference is not always statistically significant (Appendix Tables B.2 and B.3).

Longer interventions did not have larger effects. Although we might expect longer interventions to have larger effects, an intervention's duration (in months) was not significantly associated with its average effect (Appendix Table B.6). This seems counterintuitive, but the pattern could occur if shorter interventions tend to be more intensive, whereas longer interventions are less intensive. For example, a one-month intervention could include full-time occupational or sectoral training, whereas a one-year intervention could include monthly meetings. Controlling for other intervention, study, and outcome characteristics via meta-regression did not change this result (Appendix Tables B.2 and B.3).

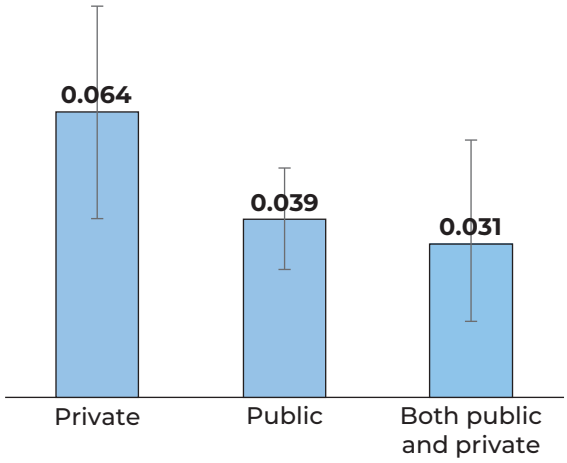
Interventions delivered by public providers had smaller effects. Public entities—such as state Temporary Assistance for Needy Families (TANF) agencies, community colleges, or workforce agencies—delivered most interventions in the Pathways Clearinghouse. But private providers delivered 26 percent of interventions, and public and private providers jointly delivered 15 percent of interventions (Rotz and Langan 2022). (Examples of private providers included community organizations and nonprofits, or agencies operating under contract for public entities.) Average effect sizes were smaller when a public provider

delivered an intervention, compared with those delivered fully or in part by private providers (Figure 4). This difference is statistically significant (Appendix Table B.6). The meta-regression also demonstrates privately provided interventions have larger effects than other interventions, though the difference is not always statistically significant (Appendix Table B.2).

Are some outcomes more likely to improve than others?

Education and training outcomes show the largest beneficial effects. Interventions that measured impacts on education and training outcomes had an average effect size of 0.100, which is equivalent to a 5.0 percentage point increase in educational attainment (Figure 5). For employment and earnings, the average effect sizes across interventions were 0.050 and 0.042, respectively. These averages are equivalent to increases in employment of about 2 percentage

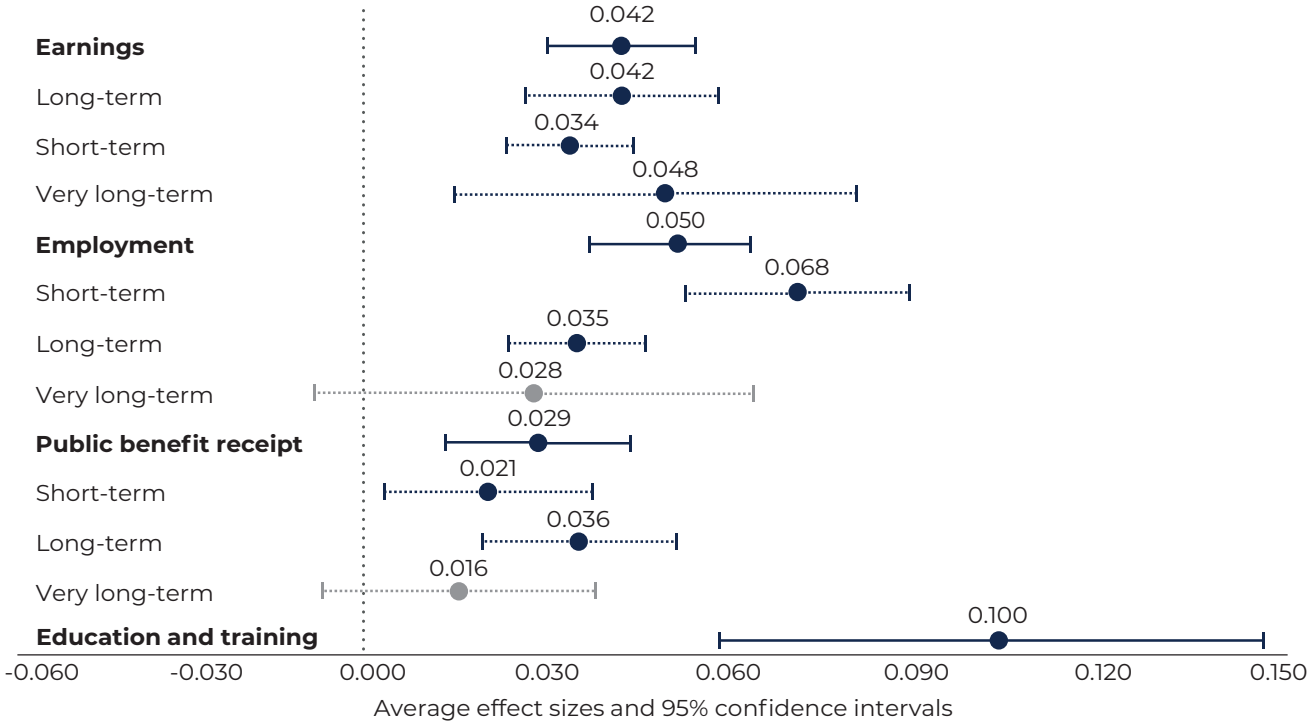
Figure 4. Average effects of interventions, by provider type



Source: Pathways Clearinghouse database.

Notes: Average intervention effects are shown as bars; 95 percent confidence intervals are shown as lines. Estimates are weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.6.

Figure 5. Average effects by outcome domain and time horizon



Source: Pathways Clearinghouse database.

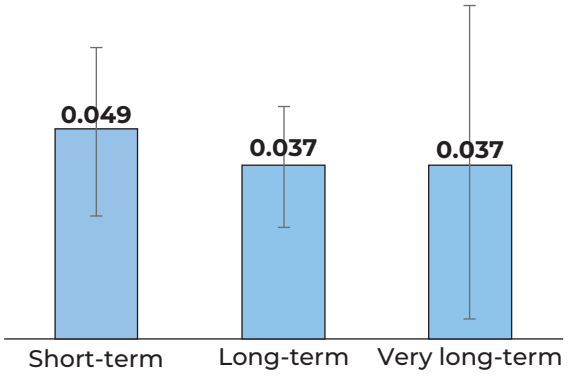
Notes: Average intervention effects are shown as circles; 95 percent confidence intervals are shown as lines. Each outcome domain is plotted as a solid line, with different time horizons represented by horizontal dotted lines. When this line includes zero, which is shown by the vertical dotted line, the average effect size is not statistically significant at the 0.05 level and the line is shown in gray. When this line does not include zero, the average effect size is statistically significant at the 0.05 level and the line is shown in dark blue. If the colored line is completely to the left of the dotted line, the evidence suggests that an intervention has an unfavorable average effect. If the colored line is completely to the right of the dashed line, the evidence suggests that an intervention. Estimates are weighted averages and do not adjust for other outcome characteristics. For details, see Appendix Table B.7.

points and in earnings of about $900 per year. The typical intervention included in the Pathways Clearinghouse has a smaller effect on public benefit receipt. The average effect size for these outcomes was 0.029, equivalent to an annual average reduction in public assistance income of around $80.[9]

The relatively large average effect size for education and training outcomes is not surprising because many interventions that measure education and training outcomes provide education and training services as part of the intervention. So even when an intervention that provides education and training services is seeking to improve earnings outcomes, the education and training outcomes will be more directly affected by the intervention than the earnings outcomes.

Across all types of outcomes, intervention effects are relatively similar in the short-, long-, and very long-terms (Figure 6), with no statistically significant differences. The meta-regression results also demonstrate this lack of difference (Appendix Table B.2).

Figure 6. Average effects of interventions, by outcome time horizon



Source: Pathways Clearinghouse database.

Notes: Average intervention effects are shown as bars; 95 percent confidence intervals are shown as lines. Estimates are weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.7.

Short-term employment seems easier to improve than long-term employment. Although average impacts were similar in the short and long terms, some groups of outcomes show differences over time. Most notably, the average impact on short-term employment is slightly larger than that for long-term and very long-term employment. In particular, the meta-regression suggests that the average effect size was 0.035 standard deviations larger for short-term employment compared with long-term employment (Appendix Table B.3). The difference is equivalent to an increase in the employment rate of 1.4 percentage points and is statistically significant. The pattern suggests that some interventions that boost short-term employment might not improve longer-term employment. Many interventions, such as transitional jobs programs, directly provided individuals with employment opportunities in the short term, which likely explains at least part of this pattern.

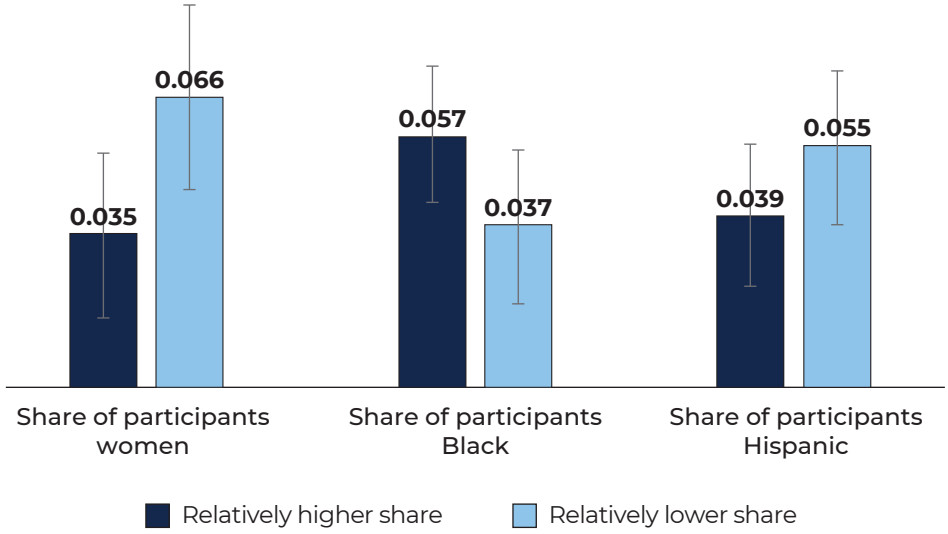
What characteristics of intervention participants are associated with larger improvements in outcomes?

Interventions also vary based on the participants they serve. We investigated whether the demographic composition of participants, their educational attainment, and their receipt of cash assistance were associated with an intervention's effects. Due to data availability, this analysis considered the overall characteristics of intervention participants (for example, whether the sample was mostly Black), rather than effects for subgroups of participants (for example, effects for Black participants).

Interventions serving more women had smaller effects. Most interventions were tested with predominantly female populations. Although data on gender were not available for every intervention, the typical intervention sample was 68 percent female (see Rotz and Langan 2022). We therefore split studies into two roughly equal categories to analyze differences based on gender: those with a sample comprised of more than 68 percent women and those with a sample comprised of 68 percent women or less.

[9] Similar effect sizes correspond to different dollar values for earnings and public benefit receipt because there was far more variation in earnings than public benefits.

Figure 7. Average effects of interventions, by participants' gender, race, and ethnicity



Source: Pathways Clearinghouse database.

Notes: Differences are -0.032 (p = 0.003) for share of participants women, 0.020 (p = 0.026) for share of participants Black, and -0.016 (p = 0.078) for share of participants Hispanic. Average intervention effects are shown as bars; 95 percent confidence intervals are shown as lines. Estimates are weighted averages and differences in weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.8.

*Difference is statistically significant at the 0.05 level.

On average, intervention effects are smaller for interventions serving more people identifying as female (Figure 7). The average effect size among the studies categorized as including more women was 0.035, about half as large as the average effect size among studies including more men. But in the meta-regressions, the relationship was not statistically significant (Appendix Table B.2).

This pattern is somewhat at odds with prior literature, which has found stronger intervention effects of employment and training programs for women compared with men (for example, Card et al. 2018). However, that research typically compares effects for subsamples of male and female participants receiving the same intervention. Both patterns (that interventions serving more men have larger or about the same effects as those serving more women and that interventions have larger effects for women than for men) could occur if interventions that serve more men have larger effects for both men and women than interventions that serve more women.

Interventions serving more people identifying as Black or Hispanic had smaller effects on employment, but only after adjusting for intervention and study characteristics. Most interventions were tested within majority-minority populations (see Rotz and Langan 2022 for further details). For the average intervention, 47 percent of the study population identified as Black and 20 percent as Hispanic or Latinx. Similar to the way we examined gender, we divided studies into (1) two roughly equal groups based on the share of the sample identifying as Black (more or less than 47 percent of the sample identifying as Black) and (2) two different roughly equal groups based on the share of the sample identifying as Hispanic (more or less than 20 percent of the sample identifying as Hispanic).[10]

The meta-analysis suggests that interventions serving a population including more people who identified as Black tended to have larger effects. In particular, studies with relatively more Black participants had an average effect size about 0.020 higher than those with relatively fewer Black participants (Figure 7). This difference is equivalent to an increase in annual earnings of around $400.

[10] We also used similar methods to investigate differences in effect sizes based on the share of the sample identifying as White and non-Hispanic (see Appendix Table B.8).

But when examined in a meta-regression, this pattern does not always hold. In fact, meta-regressions suggest that an increase in the share of intervention participants who are Black is associated with a decrease in the effect of an intervention on employment, after holding other characteristics of the intervention and population served constant (Appendix Table B.3). That is, the relationship between race and effect sizes is likely the result of differences in the characteristics of interventions that serve relatively more or relatively fewer Black people. For example, interventions serving Black communities might be less likely to use the most effective primary services than other interventions.

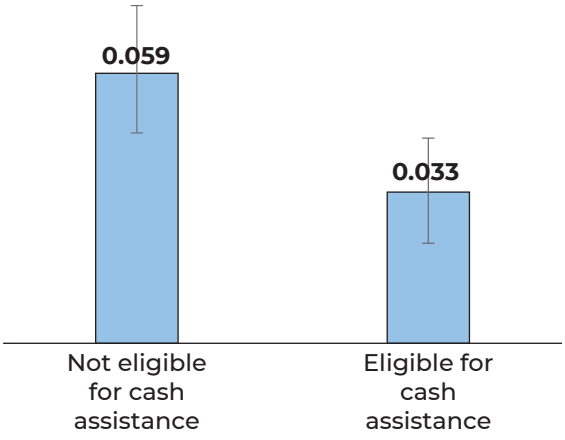
Effect sizes were also somewhat smaller when a sample included more people who identified as Hispanic (Figure 7). The difference in means was not statistically significant; however, meta-regressions suggest a 10 percentage point increase in the share of a study sample that was Hispanic was associated with a statistically significant decrease in a study's effect size for employment of 0.01 (Appendix Table B.3).

There was no evidence that interventions serving people with higher educational attainment before intervention enrollment was associated with intervention effects. The share of intervention participants who had graduated high school was not related to intervention effect sizes in any analysis (Appendix Tables B.2, B.3, and B.8).

Interventions serving people eligible for cash assistance had weaker effects than those serving a broader set of people with low incomes. Many interventions focused on serving individuals with specific employment barriers, needs, or characteristics. Cash assistance recipients were the most common population examined, with 67 interventions tested on samples including only individuals eligible for or receiving cash assistance (Rotz and Langan 2022).

When interventions served only individuals eligible for cash assistance, effect sizes were smaller (Figure 8). In particular, the average effect size was 0.033 when an intervention was tested among only those eligible for cash assistance but was 0.059 when individuals not eligible for cash assistance were also served. The difference was equivalent to a change in annual public benefits received of around $70. However, differences were not statistically significant once we used meta-regression to account for other factors. Therefore, it is likely that the difference in average intervention effects was due to some other factor. For example, interventions focused on cash assistance recipients tended to have participation requirements and to have been evaluated in the 1990s (rather than more recently).

Figure 8. Average effects of interventions, by focus on people eligible for cash assistance



Source: Pathways Clearinghouse database.

Notes: Difference between groups is 0.026 (p = 0.002). Estimates are weighted averages and differences in weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.8.

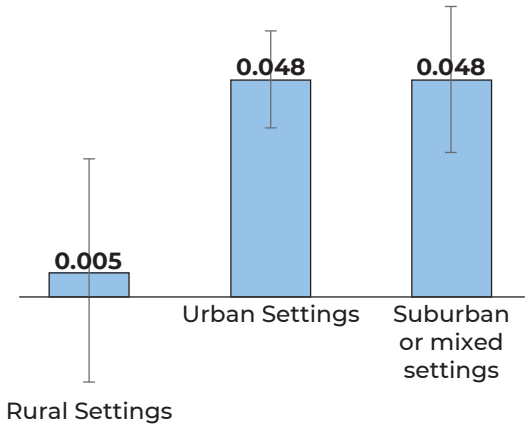
What contextual factors are associated with improvements in outcomes?

The context in which an intervention is tested can impact its effectiveness. We investigated these differences by examining differences in average effects based on an intervention's setting and timing.

Interventions delivered in rural settings had smaller effects. Almost all interventions were tested within an urban setting, or a setting including a mix of urban, suburban, and rural areas (Rotz and Langan 2022). Three interventions were tested in rural areas, and the average effect size across these was close to zero and significantly lower than that for interventions tested in fully urban or other areas (Figure 9).[11] However, given the small number of interventions tested in rural areas, it is very likely the rural interventions share other characteristics; these characteristics might cause the difference, rather than the rural setting.

Interventions had similar effects regardless of whether they were implemented during periods of economic recession or economic expansion. Overall, economic conditions were not associated with intervention effects in our analysis (Appendix Table B.9). In a further synthesis report (Stanczyk et al. 2021), we explore these patterns in greater detail.

Figure 9. Average effects of interventions, by setting



Source: Pathways Clearinghouse database.

Notes: Average intervention effects are shown as bars; 95 percent confidence intervals are shown as lines. Estimates are weighted averages and do not adjust for other intervention characteristics. For details, see Appendix Table B.9.

Can how an intervention was studied affect its findings?

Sample size is not associated with effect size. Prior research has found that an intervention's effects are typically larger when evaluated using fewer participants (Slavin and Smith 2009). For the interventions catalogued in the Pathways Clearinghouse, we did not find evidence of a relationship between sample size and intervention effects (Appendix Table B.10). Most samples in the Pathways Clearinghouse are fairly large—with an average sample size of around 1,500 and only 3 studies including fewer than 100 participants.

Average effect sizes are larger when measured using survey data. Research has shown that intervention effects tend to be larger when evaluated using data from surveys compared with administrative sources—such as unemployment insurance, tax, or public benefits records (for example, see Mastri et al. 2018). Our findings were consistent with this. The average effect size measured using administrative data is 0.041, whereas the average effect size measured using survey data is 0.062. The difference, equivalent to an increase in annual earnings of around $450, is statistically significant.

Intervention effects can be influenced by the services provided to the comparison group. Finally, interventions can be compared to several types of comparison groups. For most interventions in the Pathways Clearinghouse, the comparison group received business-as-usual services, meaning the services they would typically be able to access from their local TANF agencies, the workforce system, and other providers. But sometimes, the comparison group could receive another intervention. For example, research might compare one group receiving a job search assistance program with another group receiving a training program. Average effect sizes are larger when an intervention was compared with business-as-usual rather than another intervention. The average effect size for these types of comparisons was around 0.052, compared with 0.017 when two interventions were compared. The difference of 0.034 standard deviations was statistically significant and equivalent to a boost in annual earnings of just more than $700. A similar pattern holds within the meta-regression results (Appendix Tables B.2 and B.3).

[11] The interventions implemented in rural settings were Future Steps, Moving Up-South Carolina, and Building Nebraska Families. The first two interventions focused on providing case management services, while the final intervention focused on soft skills training.

Interventions had larger effects before welfare reform and after the Great Recession than between these milestones. We divided studies into three groups based on the time during which they enrolled participants: before TANF implementation (1996 or earlier), between TANF implementation and the Great Recession (1997 to 2007), and during and after the Great Recession (2008 or later, which includes both the Great Recession itself and its subsequent recovery period). The average effect size for interventions enrolling participants after the Great Recession was largest (0.080), followed by interventions before TANF implementation (0.045), and interventions between TANF implementation and the Great Recession (0.019). Each average effect size was significantly different from the others (Appendix Tables B.2 and B.9).

Cautions for interpreting findings

Three key limitations for this analysis should be kept in mind when interpreting findings:

Outcomes selected for inclusion. The analysis was limited by the outcomes and intervention characteristics cataloged by the Pathways Clearinghouse. All included outcomes measure employment, earnings, public benefit receipt, or education and training. However, other outcomes, such as those related to health or well-being, are also likely important. In addition, the Pathways Clearinghouse recorded information on only a subset of outcomes within these groups. For example, it did not record information on every possible measure of employment reported (see Rotz et al. 2020 for details). And, although the Pathways Clearinghouse database includes many intervention characteristics, it does not capture all the characteristics of potential interest.

Publication bias. The tendency of study authors to report and publish favorable findings more often than other findings could lead to overly optimistic results. This phenomenon is known as publication bias. To address this concern, the Pathways Clearinghouse and this report include findings from published and unpublished reports (Pigott and Polanin 2020). However, if the least favorable findings are not available in published or unpublished research (termed the "file drawer" problem, see Dalton et al. 2012), this type of bias could still affect the meta-analysis.

Differences, not impacts. This analysis includes only findings that the Pathways Clearinghouse has assessed and determined to have high or moderate quality. This means that we can be at least somewhat confident that the effects included in this analysis represent the causal effects of the interventions examined, rather than some other factor. However, this does not mean that the differences in the effects are caused by differences in the interventions examined. For example, we can be confident that work and work-based learning interventions improved outcomes by an average of 0.066 standard deviations and that interventions focused on case management or other supports improved outcomes by an average of 0.016 standard deviations. But we cannot conclude that choosing to focus an intervention on work and work-based learning, rather than case management or other supports, increases an intervention's effect by 0.050 standard deviations (0.066-0.016=0.050). Other differences between the interventions, such as the populations served or implementers, could lead to differences in average effect sizes.

Looking forward: Increasing evidence on how to help people with low incomes

The results of this analysis demonstrate that some interventions improve outcomes for individuals with low incomes. In particular, 29 of 144 tested interventions had statistically significant average effects. These interventions might improve some outcomes while worsening or leaving unchanged other outcomes, but they led to gains, on average, across the outcomes used to evaluate them. These interventions used a wide range of services and included programs focused on work and work-based learning, employment services, education and training, incentives and sanctions, and case management or other supports.

Still, some interventions were more effective than others. In particular, interventions that focused on work and work-based learning and employment services outperformed other interventions, on average. Education and training interventions were also more effective at increasing educational attainment, whereas employment retention interventions were more effective than some other interventions at improving employment.

In addition, we found some evidence that interventions had smaller effects on employment when tested in samples in which a greater share of participants identified as Black or Hispanic. This could occur for several reasons. For example, there might be nuanced differences in types of services commonly provided in Black or Hispanic communities, differences in service needs that interventions do not fully address, or other factors external to the interventions, such as discrimination in the labor market, that limit the effectiveness of interventions serving Black and Hispanic communities. More evidence is needed on the reasons for these differences. Moreover, this research examined differences in intervention effects based on participant characteristics but did not incorporate impacts for participant subgroups. For example, we compared intervention effectiveness in mostly Black versus mostly White samples, and not intervention effectiveness for subsamples comprised of participants that identify as White versus subsamples comprised of participants that identify as Black. More research using intervention effects for specific subgroups could be helpful to further assess the interventions that work best for different groups of people.

But overall, intervention effects tended to be modest. The average intervention only improved outcomes by 0.047 standard deviations, an effect equivalent to an increase in annual earnings of around $1,000. Typically, an effect size of around 0.25 standard deviations is considered to be a large effect. But only four interventions had an effect around this large. This suggests that interventions can help people with low incomes, but that more intensive programs and policies might be needed to help these individuals achieve self-sufficiency.

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Goals of the Pathways Clearinghouse

The Pathways Clearinghouse systematically evaluates and summarizes the evidence on the effectiveness of interventions that aim to improve employment outcomes, reduce employment challenges, and support self-sufficiency for populations with low incomes. It has several goals:

- Conduct a transparent, comprehensive search to identify studies of employment and training interventions designed to improve employment, increase earnings, support self-sufficiency, or advance education and training for populations who are low income.
- Rate the quality of those studies to assess the strength of the evidence they provide on the different interventions.
- Determine the evidence of effectiveness for those interventions.
- Share the results, as well as other Clearinghouse products, on a user-friendly website to help state and local TANF administrators, policymakers, researchers and the general public make sense of the results and better understand how this evidence might apply to questions and contexts that matter to them.
- Synthesize the overall state of evidence in the field by creating and disseminating a variety of reports, briefs, and other products.

For more information, see https://pathwaystowork.acf.hhs.gov.

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