DIGGING DEEPER INTO WHAT WORKS: WHAT SERVICES IMPROVE LABOR MARKET OUTCOMES, AND FOR WHOM?

Service providers, policymakers, and researchers need to know how likely specific interventions are to improve employment and related outcomes if implemented in a particular setting with clients. In practice, most employment interventions offer a combination of services that are designed to help individuals improve their labor market outcomes (e.g., employment, earnings, education and training, and public benefit receipt). This report provides insights on both the likelihood that specific interventions will improve labor market outcomes and, looking across the research on different interventions, which combinations of services are most likely to be effective for different groups of people, using a Bayesian meta-analysis approach (defined in Box 3).

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 people with low incomes. Through a comprehensive search strategy, the Pathways Clearinghouse team has examined more than 8,000 manuscripts and identified research on 221 interventions for review. Earlier reports by the Pathways Clearinghouse team provide an overview of these interventions and the

Box 1. 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 in the Administration for Children & Families launched the Pathways to Work Evidence 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 identify the interventions, and the combination of services provided by those interventions, that are most likely to improve labor market outcomes for different groups of people. This information can inform decisions about which services to fund, recommend, implement, or study further.

research examining them (Rotz and Langan 2022), and present meta-analyses describing average intervention effects, how these effects vary across groups of people, and in what contexts interventions appear to be most successful (Streke and Rotz 2022; Stanczyk et al. 2021). In this meta-analysis, we dig deeper into what works, using Bayesian methods to investigate the following:

1. What are the most effective interventions in the Pathways Clearinghouse?
2. Which services and combinations of services have the highest probabilities of improving outcomes?
3. Which services are most effective based on characteristics of study participants?

Box 2. 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 from 1990 to 2019 and are in English.*

In the Pathways Clearinghouse's first searches for relevant research, which took place in fall 2019 and summer 2020, the review team gathered more than 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 might 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 1,753 findings from 183 studies of 127 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 published through 2019, the Pathways Clearinghouse continues to review new studies as they become available. Tables and figures in this report draw on the Pathways Clearinghouse database available as of June 2021.

** 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).

Key takeaways from the analysis include the following:

- Twelve of the 127 interventions examined for this analysis have more than a 90 percent probability of improving labor market outcomes for participants.

- Interventions focused on work and work-based learning have the highest probability of improving outcomes relative to interventions focused on delivering other services.

  - Interventions focused on work and work-based learning have a 72 percent probability of improving labor market outcomes overall (including earnings, employment, education and training, and public benefit receipt), and a 92 percent probability of improving employment outcomes specifically.

  - Interventions focused on work and work-based learning were most effective when combined with employment services; these interventions have an 80 percent probability of improving outcomes when offered in combination with work and work-based learning.

- No single primary service is particularly likely to improve outcomes by a substantial amount (by at least $1,000 in annual earnings).

  - Though interventions focused on work and work-based learning have the highest probability of improving outcomes by any amount, they are among the least likely to improve outcomes by a substantial amount relative to interventions focused on delivering other services (a 21 percent probability of improving outcomes by an amount equivalent to $1,000 or more).

  - Interventions focused on subsidized and transitional jobs are the most likely to improve outcomes by an amount equivalent to $1,000 or more (a 32 percent probability).

- The likelihood that an intervention offering a particular primary service improves outcomes differs depending on the characteristics of the population being studied. However, interventions focused on work and work-based learning, employment retention services, and case management and other supports typically have the highest probabilities of improving outcomes in interventions serving primarily people from racial or ethnic minority groups, women, and people with disabilities.

Methods: Refining and synthesizing evidence from the Pathways Clearinghouse

We refined and synthesized the findings from the Pathways Clearinghouse to assess which interventions and services will most likely lead to improved labor market outcomes for various groups of people.

We refined the evidence by identifying the primary service offered by each intervention and the populations served by each intervention, and by grouping outcomes and standardizing impacts across studies.

We synthesized the evidence using **Bayesian meta-regression,** a methodological approach that enabled us to distill all available information into an assessment of the probability that an intervention, service, or combination of services would improve outcomes in a future implementation, under assumptions that we describe further in this section.

Refining the evidence

Categorizing interventions

The Pathways Clearinghouse team broke each intervention down into its component services, and then grouped these services into eight major categories (see Box 4 below, and refer to Appendix Table B.1 for further information). To provide richer information about services and to group together similar interventions, the Pathways Clearinghouse team also

Box 3. Methods overview

What are meta-analysis and meta-regression?

Meta-analysis is a technique used to synthesize findings across studies by averaging impact estimates. Meta-regression is a tool used in meta-analysis to estimate the relationships between impact estimates and individual study and intervention characteristics while holding all other characteristics constant.

Why do we use Bayesian meta-regression?

Bayesian meta-regression is an advanced form of meta-regression. It enables us to estimate relationships between impacts and specific combinations of intervention and study characteristics that might appear only rarely in the data. It also allows us to model the relationship between these characteristics and estimated impacts in a way that captures some of the complexity inherent in these relationships. Lastly, this approach enables us to draw policy-relevant assessments of effectiveness by calculating the probability that interventions and intervention characteristics could be genuinely effective, given all the available evidence.

catalogued the primary service that was most central to each intervention into one of these eight major categories. Each intervention was assigned exactly one primary service.

Standardizing findings across studies

The Pathways Clearinghouse team reviewed each intervention's impacts on 10 groups of labor market outcomes, called outcome domains. An **outcome domain** is a combination of an outcome type and a time period. The **outcome types** are employment, earnings, public benefit receipt, and education and training. The **time periods** are short term (within

Box 4. Intervention categories based on services offered*

- **Case management and other support** interventions focus on assessing clients' needs, linking clients to other available services, and providing other supports to overcome barriers, such as substance abuse counselling or classes to promote financial literacy.
- **Education** interventions focus on providing services to support educational attainment, such as GED support, adult basic education, or postsecondary education.
- **Training** interventions focus on providing or supporting an individual through training programs, including occupational or sectoral training programs tied to a particular occupation.
- **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.
- **Subsidized and transitional employment** interventions provide clients with jobs that are partially or fully paid by an external funder that is not the employer (such as private organizations or workforce agencies).
- **Work and work-based learning** interventions focus on providing clients with work experience and on-the-job learning opportunities, such as apprenticeships.

* The Bayesian techniques used in this report enable us to use a larger number of primary service categories than prior Pathways Clearinghouse reports (Streke and Rotz 2022; Stanczyk et al. 2021). We selected both the smaller and larger set of categories based on the literature.

18 months of first being offered services), long term (18 to 60 months), or very long term (more than 60 months). There is a single education and training domain that includes outcomes assessed any time after the intervention.

Next, to enable the analysis of impacts on outcomes that are on different scales (for example, comparing an impact on employment with an impact on earnings), we standardized impact estimates across studies by dividing every impact estimate by the standard deviation of the outcome. These standardized impact estimates are called effect sizes. Using effect sizes enables us to include impacts on different outcomes, for example, employment and public benefit receipt, in the same analysis (see Appendix A for details).

We standardized the signs of effect sizes so that a positive effect size always corresponds to a favorable intervention effect. The Pathways Clearinghouse aims 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).

Identifying primary populations served by interventions

We identified the population(s) of focus in an intervention by determining whether a study sample consisted of at least 80 percent of individuals from a given group. For example, a study of young adults in which 95 percent of participants had prior justice system involvement would be categorized in both the young adult and people with prior justice system involvement categories. We examined only population groups for which there were enough findings to estimate our meta-regression model with sufficient precision. In the data used for this report, the most common populations of focus were women (83 studies) and people eligible for cash assistance (79 studies). See Appendix A for further detail.

Synthesizing the evidence

As previously noted, we used a meta-analysis technique known as Bayesian meta-regression to examine how various factors (for example, primary services) are related to intervention impacts, while accounting for other factors. In contrast to typical meta-analysis methods, using Bayesian estimation techniques allows us to estimate relationships with little applicable data (for example, the effects of services with few relevant studies).[1]

In this report, we use a Bayesian approach to understand the likelihood that reported impact estimates represent genuine intervention effects rather than statistical errors. With this approach, we can calculate the probability that interventions and intervention characteristics could be genuinely effective, given all the available evidence. We also estimate probabilities that impacts exceed a particular threshold (for example, the probability that an intervention can improve outcomes by an amount equivalent to a $1,000 increase in annual earnings). For further detail, see Box 5.

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[1] To estimate these relationships, the Bayesian approach draws on information from all the studies that offered a given service or focused on a given population. For example, only a few studies might examine an intervention offering case management as a primary service and focus on people with prior justice involvement. A Bayesian approach enables us to estimate the relationship more precisely because we can use information about the larger sets of all interventions offering case management and all interventions directed to people who were formerly incarcerated; at the same time, we can use information from other combinations of primary services and focal populations to learn how the effects of primary services might typically vary across populations.

> ## Box 5. How to interpret the probabilities in this report
>
> We use the results from our Bayesian meta-regression models to calculate the probability that, given our data and model, a future implementation of an intervention with specified characteristics would result in positive impacts. This tells us the probability of true effectiveness, given our data, model, and the assumption that the distribution of intervention effects will not change over time (in other words, that the future will look like the past).
>
> A probability of 50 percent means that, in a future study of an intervention with the specified characteristic, it is equally likely that the intervention will improve outcomes as it is that the intervention will not change outcomes or make them worse. A probability of 90 percent means there is a 10 percent chance that outcomes will not change or will worsen because of the intervention.
>
> We calculate the probability of any impact (in other words, any favorable impact larger than zero, regardless of how big or small), as well as the probability of an impact larger than specified thresholds (equivalent to $1,000 or $2,500 or more in annual earnings).

Results: What we learned

What are the most effective interventions in the Pathways Clearinghouse?

We first estimated the probability of effectiveness for each intervention catalogued in the Pathways Clearinghouse to understand which specific interventions were most likely to improve labor market outcomes.
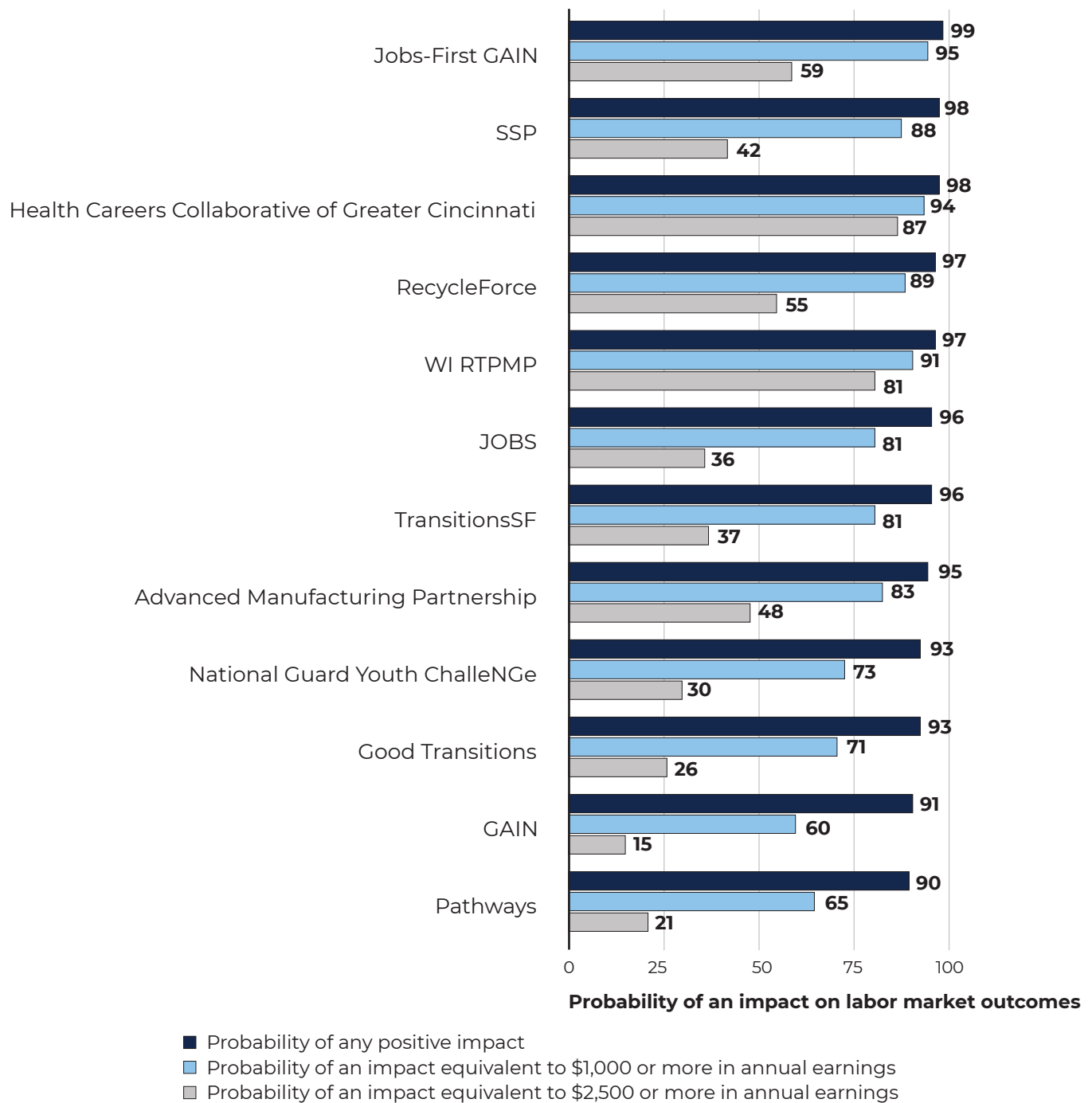
Twelve of the 127 interventions included in our analysis have at least a 90 percent probability of improving labor market outcomes (Figure 1). Among these interventions, the probability of any positive impact across outcome domains ranges from 90 percent (Ready, Willing and Able Pathways2Work) to 99 percent (Jobs-First Greater Avenues for Independence).

Among the interventions with the highest probabilities of improving outcomes, most are likely to have small to moderate impacts. Only three interventions included in our analysis have more than a 90 percent chance of improving outcomes by an equivalent of $1,000 or more in annual earnings (equivalent to an impact of about 0.05 standard deviations or more):

- **Jobs-First Greater Avenues for Independence** (estimated average impact equivalent to $2,887 in annual earnings), a program that emphasized a rapid employment strategy for recipients of Aid to Families with Dependent Children that began with a six-hour motivational meeting followed by job clubs, which were classroom sessions focused on participants' job application techniques and supervised job search.
- **Partners for a Competitive Workforce: Health Careers Collaborative of Greater Cincinnati** (estimated average impact equivalent to $5,166 in annual earnings), a program that offered a variety of trainings and other supports to help participants find employment in the health care field.
- **Wisconsin Regional Training Partnership Manufacturing Pathway** (estimated average impact equivalent to $5,878 in annual earnings), a program that offered a variety of trainings and other supports to help participants find employment in the manufacturing field.

These three interventions, plus the RecycleForce intervention, have more than a 50 percent probability of improving outcomes by an equivalent of $2,500 or more in annual earnings (about 0.12 standard deviations; Appendix Table B.2). Two of these interventions, Health Careers Collaborative of Greater Cincinnati and the Wisconsin Regional Training Partnership Manufacturing Pathway, were especially likely to improve outcomes by an equivalent of $2,500 or more in annual earnings, with probabilities of 87 percent and 81 percent, respectively.

Figure 1. Interventions with the highest probabilities of impacts on labor market outcomes

Jobs-First GAIN — 99, 95, 59
SSP — 98, 88, 42
Health Careers Collaborative of Greater Cincinnati — 98, 94, 87
RecycleForce — 97, 89, 55
WI RTPMP — 97, 91, 81
JOBS — 96, 81, 36
TransitionsSF — 96, 81, 37
Advanced Manufacturing Partnership — 95, 83, 48
National Guard Youth ChalleNGe — 93, 73, 30
Good Transitions — 93, 71, 26
GAIN — 91, 60, 15
Pathways — 90, 65, 21

Probability of an impact on labor market outcomes

■ Probability of any positive impact
■ Probability of an impact equivalent to $1,000 or more in annual earnings
■ Probability of an impact equivalent to $2,500 or more in annual earnings

Source: Pathways Clearinghouse database. For probabilities, average impacts, and standard deviations for all interventions, see Appendix Table B.2.

Notes: Displayed probabilities are rounded to the nearest whole number. Impacts refer to effect sizes, which are average effects over multiple outcome domains.

Advanced Manufacturing Partnership = Partners for a Competitive Workforce: Advanced Manufacturing Partnership; GAIN = Greater Avenues for Independence; Health Careers Collaborative of Greater Cincinnati = Partners for a Competitive Workforce: Health Careers Collaborative of Greater Cincinnati; JOBS = Portland Job Opportunities and Basic Skills Training Program; Jobs-First GAIN = Jobs-First Greater Avenues for Independence (GAIN) Program; Pathways = Ready, Willing and Able Pathways2Work; SSP = The Self-Sufficiency Project; WI RTPMP = Wisconsin Regional Training Partnership Manufacturing Pathway.

Which primary services have the highest probability of improving labor market outcomes?

Each intervention in the Pathways Clearinghouse is a distinct package of services offered in a particular context to specific groups of people. To dig deeper into which components of these interventions work to improve labor market outcomes, and for whom, our main model estimates the relationship between impact estimates and these specific characteristics of interventions and studies. We first examine the relationship between average impacts and the primary services offered (see Box 4 for definitions of each service category).

Interventions focused on work and work-based learning have the highest probability of improving outcomes by any amount, relative to interventions focused on other services. The probability that an intervention focused on work and work-based learning improves average outcomes is 72 percent, compared with between 56 percent (subsidized and transitional jobs and education) and 64 percent (employment retention services) for interventions with primary services in other categories (Figure 2).

No single primary service is particularly likely to improve outcomes by an amount equivalent to $1,000 or more, with probabilities at 32 percent or below across all eight primary service categories. Interventions focused on work and work-based learning are among the least likely to improve outcomes by a substantial amount (a 21 percent probability of improving outcomes by an amount equivalent to $1,000 or more, and a 2 percent probability of improving outcomes by an amount equivalent to $2,500 or more), as are interventions focused on case management and other support or employment retention services. In contrast, interventions focused on subsidized and transitional jobs, education, or training have a 30 to 32 percent probability of improving outcomes by an amount equivalent to $1,000 or more, and an 8 to 12 percent probability of improving outcomes by $2,500.

Figure 2. Probability that interventions offering a given primary service improve average labor market outcomes
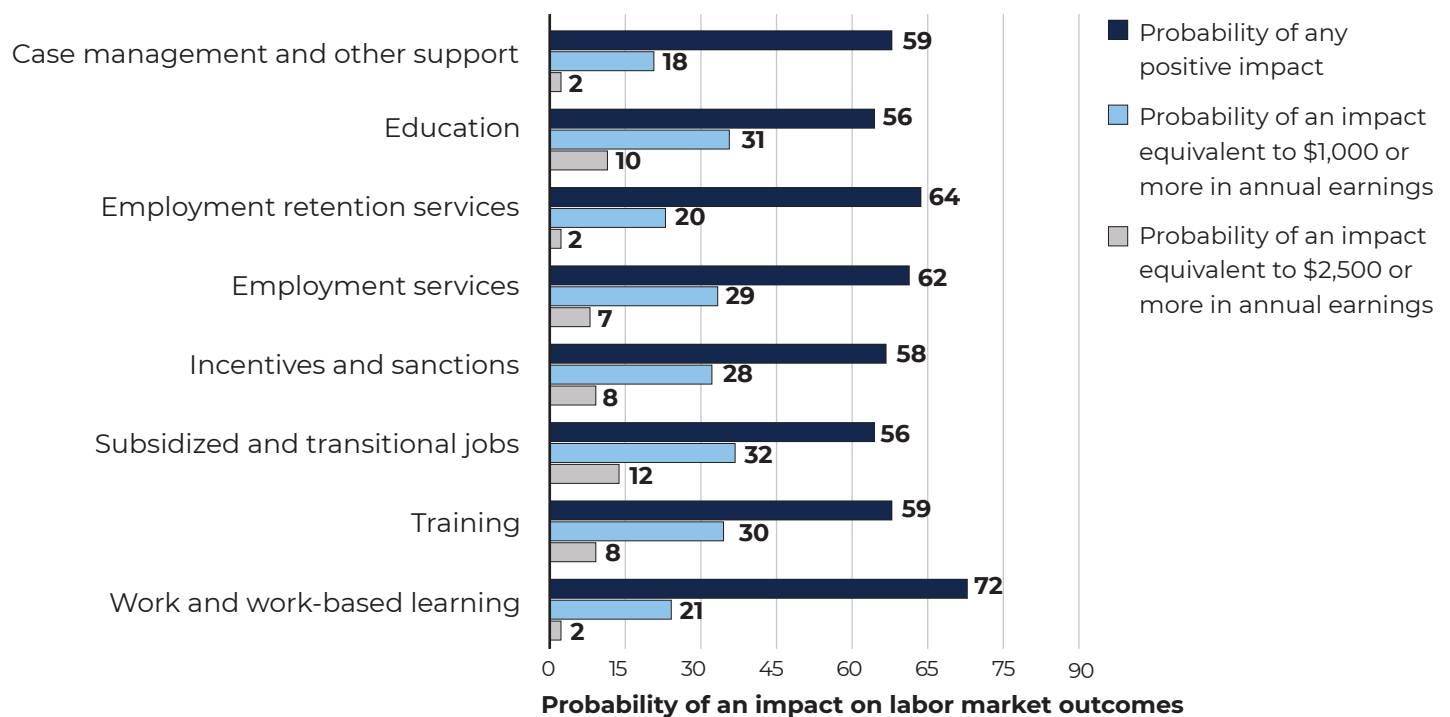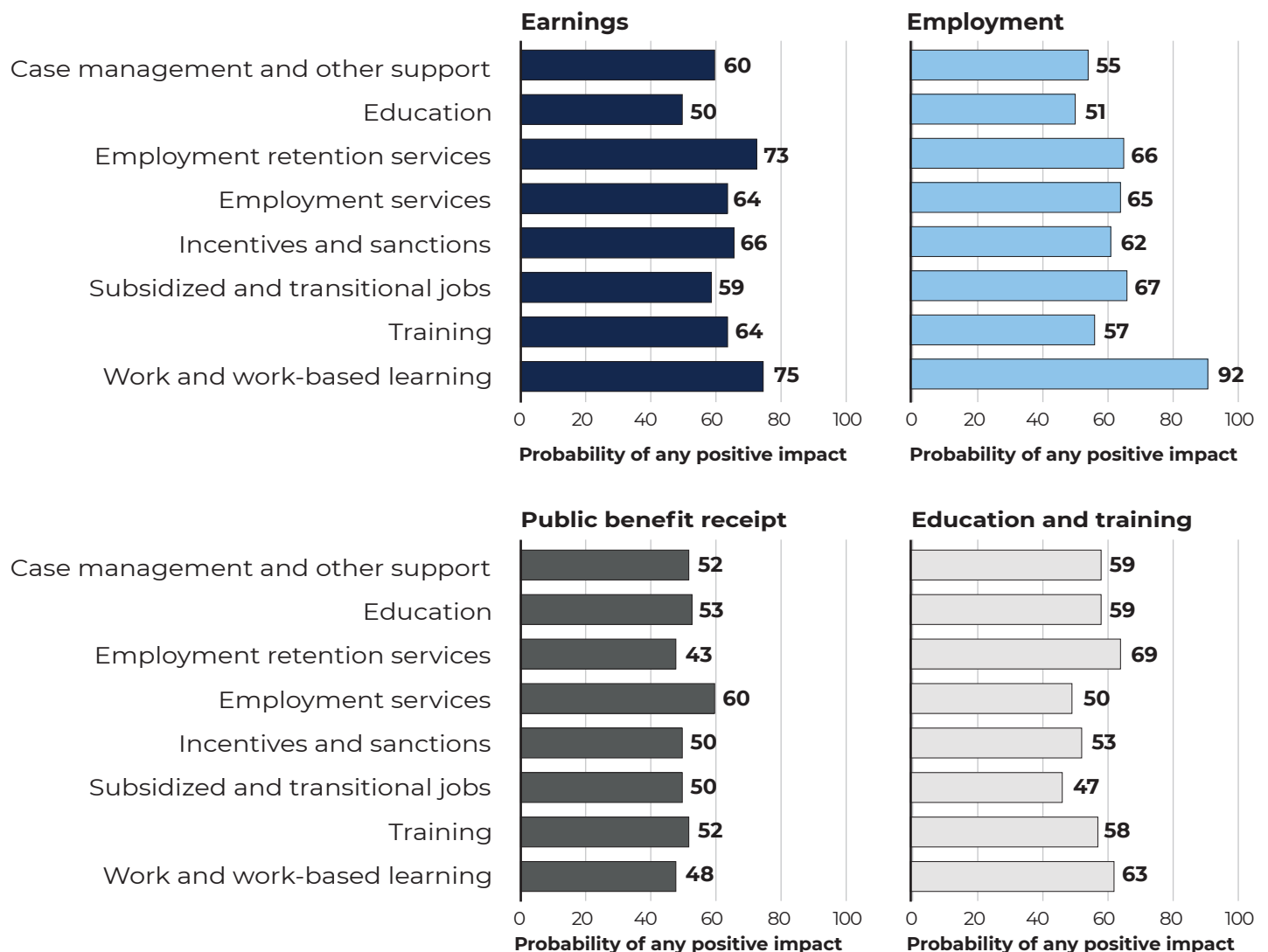

Source: Pathways Clearinghouse database.
Notes: See Appendix A for further details. Impacts refer to effect sizes, which are average effects over multiple outcome domains.

The effectiveness of primary services varies depending on the outcome domain. For example, interventions focused on work and work-based learning have a 92 percent probability of improving outcomes in the employment domain, compared with only a 48 percent probability of improving public benefit receipt outcomes (Figure 3). Interventions focused on employment retention services are more likely to improve earnings outcomes (73 percent probability) than to improve outcomes in other domains (43 to 69 percent probability). Interventions focused on subsidized and transitional jobs are more likely to improve outcomes in the employment domain (67 percent probability) than outcomes in other domains (47 to 59 percent probability).

Comparing primary service categories, interventions focused on work and work-based learning have the highest probability of improving outcomes in the employment (92 percent probability) and earnings (75 percent probability) domains compared to interventions focused on other primary services. Employment retention services have the highest probability of improving outcomes in the education and training domain (69 percent probability), and employment services have the highest probability of improving outcomes in the public benefit receipt domain (60 percent probability).

Figure 3. Probability interventions offering a given primary service improve specific labor market outcomes

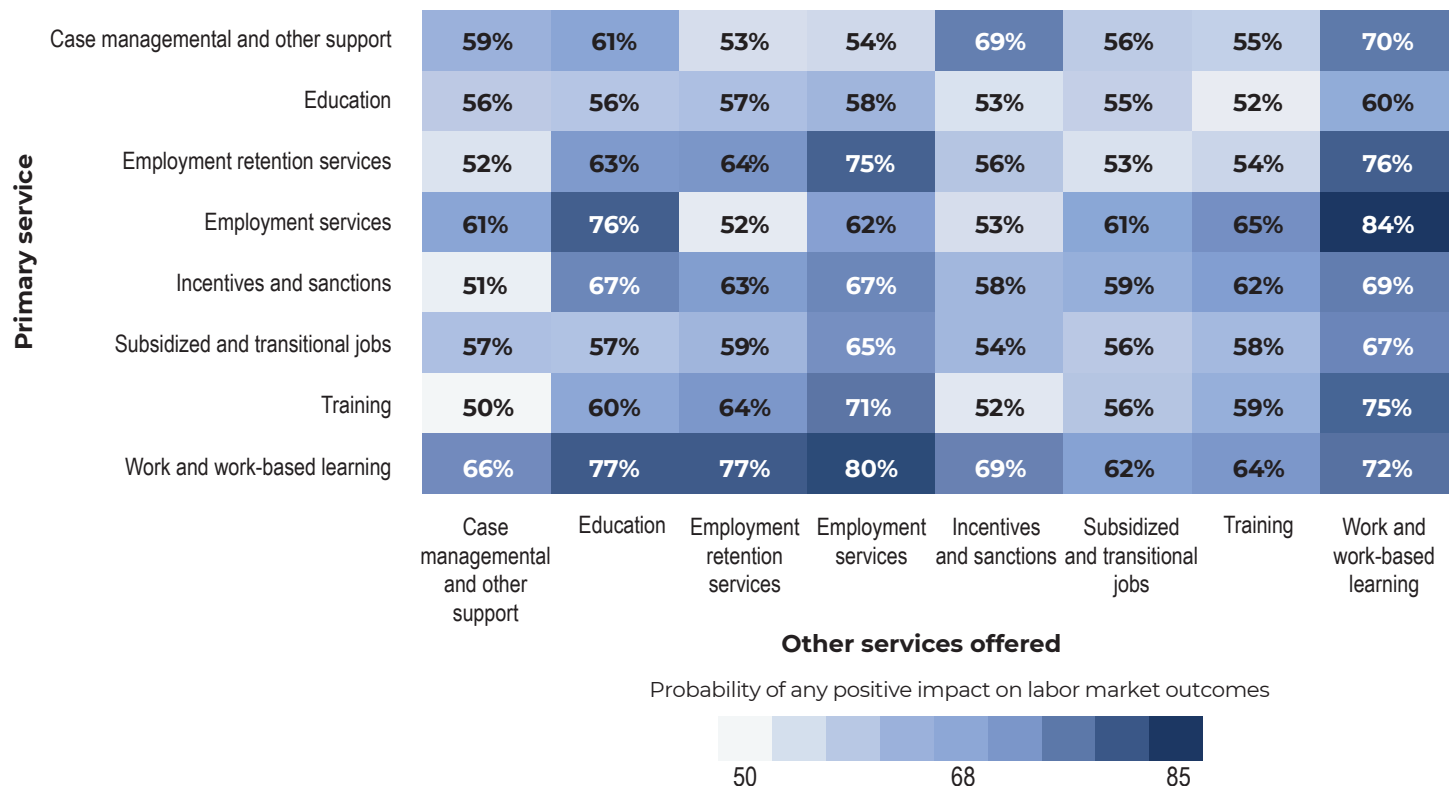Source: Pathways Clearinghouse database.

Notes: See Appendix A for further details.

What combinations of services have the highest probabilities of improving outcomes?

Although the primary service offered is an important component of every intervention, most employment and training interventions offer a package of multiple services to participants. For example, an intervention might offer subsidized employment services along with supportive services and case management. In our meta-regression model, we estimated the relationship between intervention impacts and the combinations of services offered to better understand whether certain services or intervention components are more effective when bundled together. Our analysis in this section focuses on two-way combinations of services.

The effectiveness of primary services varies depending on which other services an intervention offers. For a given primary service, the probability of any positive impact varied by up to 34 percentage points, depending on which other services an intervention offered in conjunction (Figure 4). For example, interventions focused on employment services are most effective when offered in combination with work and work-based learning (84 percent probability of improving outcomes) or education (76 percent probability of improving outcomes). In contrast, an intervention focused on employment services has a 52 percent probability of any positive impact if offered with employment retention services, and a 53 percent probability when offered with incentives and sanctions.

Figure 4. Probabilities that interventions offering specific combinations of services improve labor market outcomes

Primary service	Case managemental and other support	Education	Employment retention services	Employment services	Incentives and sanctions	Subsidized and transitional jobs	Training	Work and work-based learning
Case managemental and other support	59%	61%	53%	54%	69%	56%	55%	70%
Education	56%	56%	57%	58%	53%	55%	52%	60%
Employment retention services	52%	63%	64%	75%	56%	53%	54%	76%
Employment services	61%	76%	52%	62%	53%	61%	65%	84%
Incentives and sanctions	51%	67%	63%	67%	58%	59%	62%	69%
Subsidized and transitional jobs	57%	57%	59%	65%	54%	56%	58%	67%
Training	50%	60%	64%	71%	52%	56%	59%	75%
Work and work-based learning	66%	77%	77%	80%	69%	62%	64%	72%

Other services offered

Probability of any positive impact on labor market outcomes

50   68   85

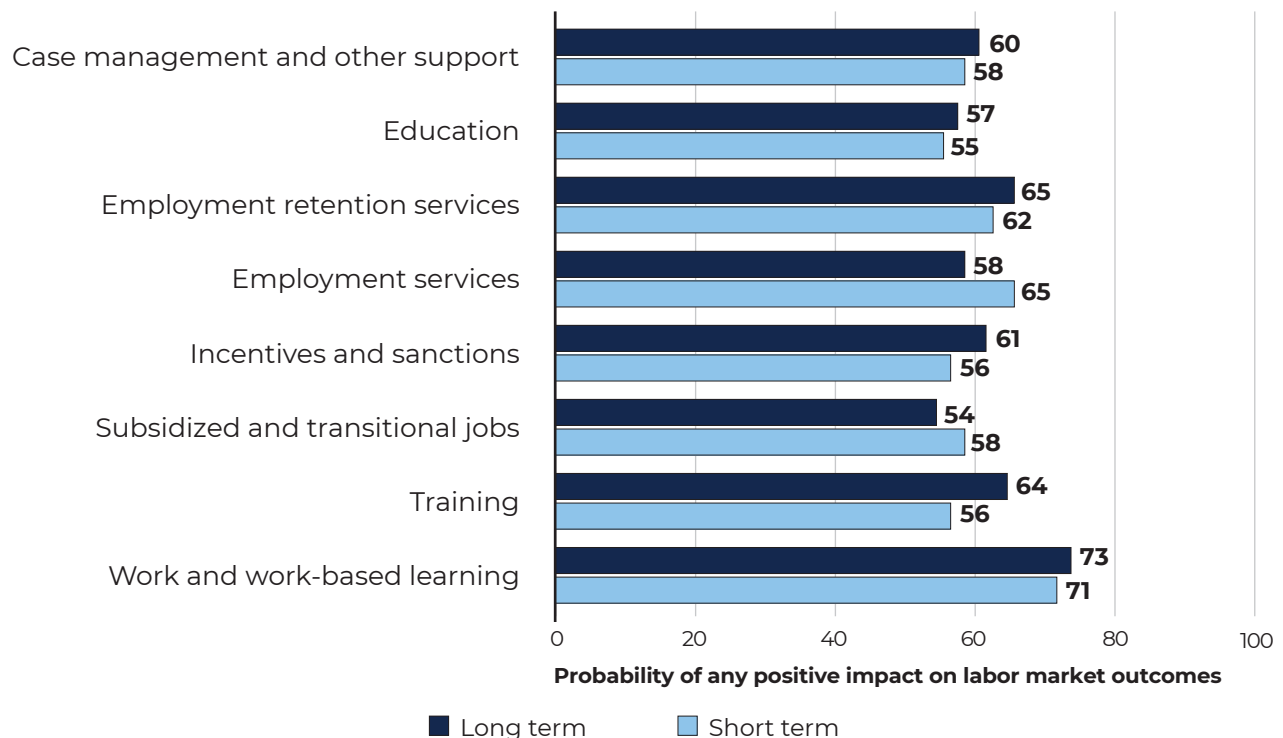Source: Pathways Clearinghouse database.

Note: This figure shows the probability that an intervention improves outcomes if it offers a primary service in the category shown on the vertical axis in combination with another service shown on the horizontal axis. For example, the first column, second row of the figure displays the probability for an intervention focused on education that also offered case management. Diagonals from top left to bottom right (the combination of a primary service offered with the same service) show the probability that a given primary service has any positive impact, regardless of the other services provided (if any) — this is the same probability presented for that primary service in Figure 2.

The four combinations of services with the highest probabilities of effectiveness all include work and work-based learning. These combinations are (listing the primary service followed by the non-primary service):

- Employment services with work and work-based learning (and vice versa);
- Work and work-based learning with employment retention services; and
- Work and work-based learning with education.

There is less variation in primary services' effectiveness based on outcome time horizon. Across primary service categories, the difference in the probability of improving short-term outcomes and the probability of improving long-term outcomes is typically small (below 5 percentage points in all categories except training and employment services). As Figure 5 shows, interventions in 6 of the 8 primary service categories are more likely to improve long-term outcomes (measured more than 18 months after enrollment in an intervention) than short-term outcomes (measured within 18 months from enrollment). Interventions focused on subsidized and transitional employment and employment services are more likely to improve short-term outcomes than long-term outcomes. This finding is consistent with the fact that some interventions in these two categories provided individuals with short-term employment opportunities (for example, transitional jobs programs), and existing evidence suggests that impacts of these programs on labor market outcomes might fade in the long term (Bloom 2010).[2]

Figure 5. Probabilities that interventions offering a given primary service improve short-term and long-term labor market outcomes
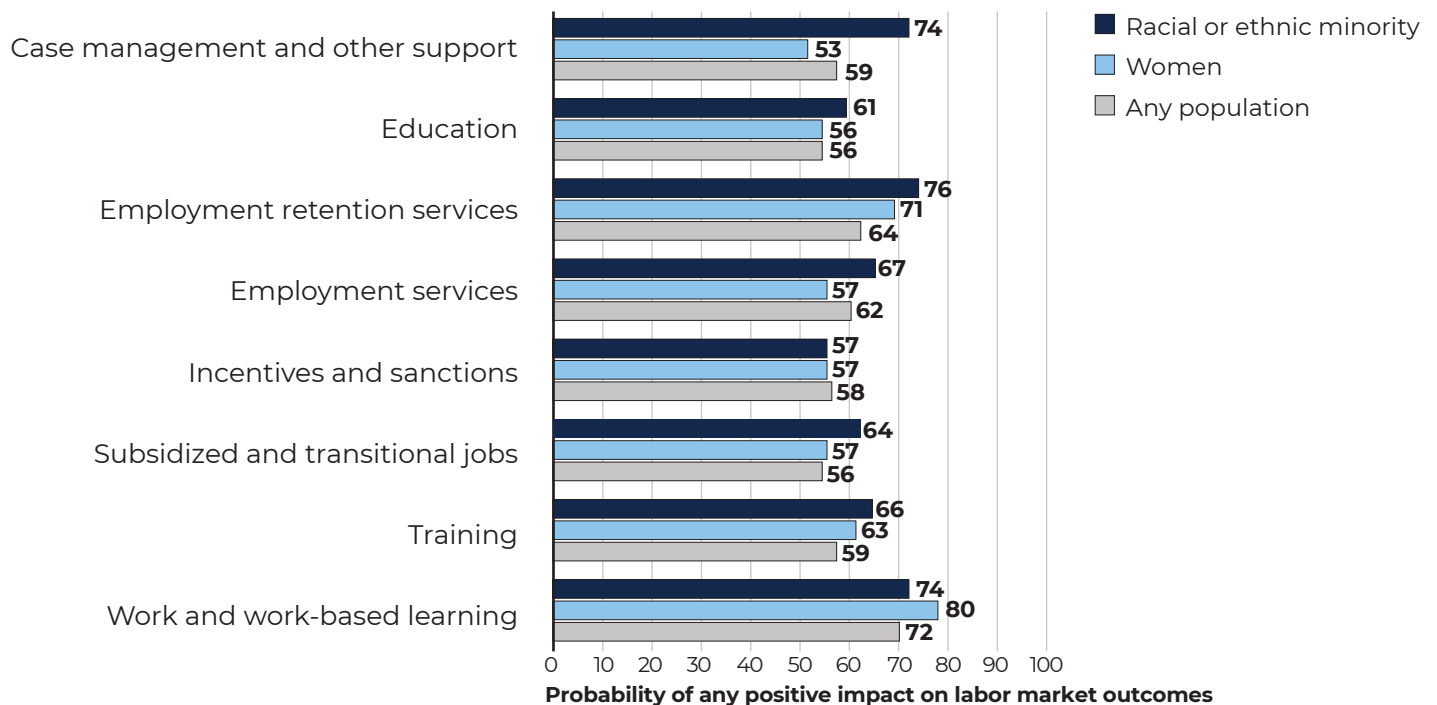

Source: Pathways Clearinghouse database.

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[2] It is possible that primary services' effectiveness may vary based on the outcome domain and time horizon – for example, a particular service may have a negative impact on employment in the short run and a positive impact on earnings in the long-run. Because we do not include these types of interactions in our model, the probabilities presented in this section describe effectiveness by time horizon across all labor market outcomes.

Which services are most effective based on characteristics of study participants?

Intervention effects might vary based on the characteristics of the participants they serve. What works for one population (and in one context) may not work for another. We investigated whether the probability of primary services' effectiveness differs depending on the demographic composition of participants, their receipt of cash assistance, and other characteristics. Because of data availability, we classified a study as focusing on a given population if at least 80 percent of the study sample belonged to that population group. Therefore, this analysis considers the overall characteristics of participants in a study (for example, whether the sample was at least 80 percent women), rather than effects for subgroups of participants (effects for women participants only).[3]

After classifying studies based on their focal populations, interventions focused on the work and work-based learning category are still among the most effective, regardless of the focal population. Among studies with samples consisting primarily of people from racial or ethnic minority groups, interventions with a primary service of work and work-based learning, case management, and employment retention services have the highest probabilities of improving outcomes (Figure 6).[4] Interventions in each of these three primary service categories have a 74 to 76 percent probability of improving outcomes in studies focused on serving people from racial or ethnic minority groups. These primary service categories have a higher probability of improving outcomes in studies focused on people from racial or

Figure 6. Probabilities that interventions offering a given primary service improve labor market outcomes based on characteristics of study participants

Source: Pathways Clearinghouse database.

Note: Focal populations are defined based on whether a study sample consisted of at least 80 percent of individuals from a given group.

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[3] Because every intervention is not tested on every group of people, it is important to keep in mind that the probabilities presented here reflect what we know from the studies that were tested on these specific population groups.

[4] Racial or ethnic minority is defined as reported sample members who were Black, Hispanic, Asian, or another racial or ethnic minority group. Because of data constraints, we are unable to examine effects separately for specific racial or ethnic groups.

ethnic minority groups than they would overall for any population. Interventions focused on incentives and sanctions have the lowest probability of improving outcomes for this population, at 57 percent.

Interventions focused on work and work-based learning have an 80 percent probability of improving outcomes in studies with samples consisting primarily of women. Interventions focused on employment retention services and training are the next most effective, with probabilities of 71 and 63 percent, respectively. All other primary service categories have less than a 60 percent probability of improving outcomes in studies with samples consisting primarily of women.

Among studies with samples consisting primarily of people with disabilities, a work and work-based learning intervention has an 87 percent probability of improving outcomes (Figure 7). Interventions using employment services and employment retention services have the next-highest probabilities of improving outcomes, at 74 and 72 percent, respectively. A similar pattern is true for studies focused on people with prior justice system involvement, though the probability of any positive impact is lower across all primary service categories for this population group compared to the probability for any population. No primary service alone has more than a 70 percent probability of improving outcomes for studies focused on young adults, or people eligible to receive cash assistance (Appendix Table B.6).

Figure 7. Probabilities that interventions offering a given primary service improve labor market outcomes among studies focused on people with employment barriers
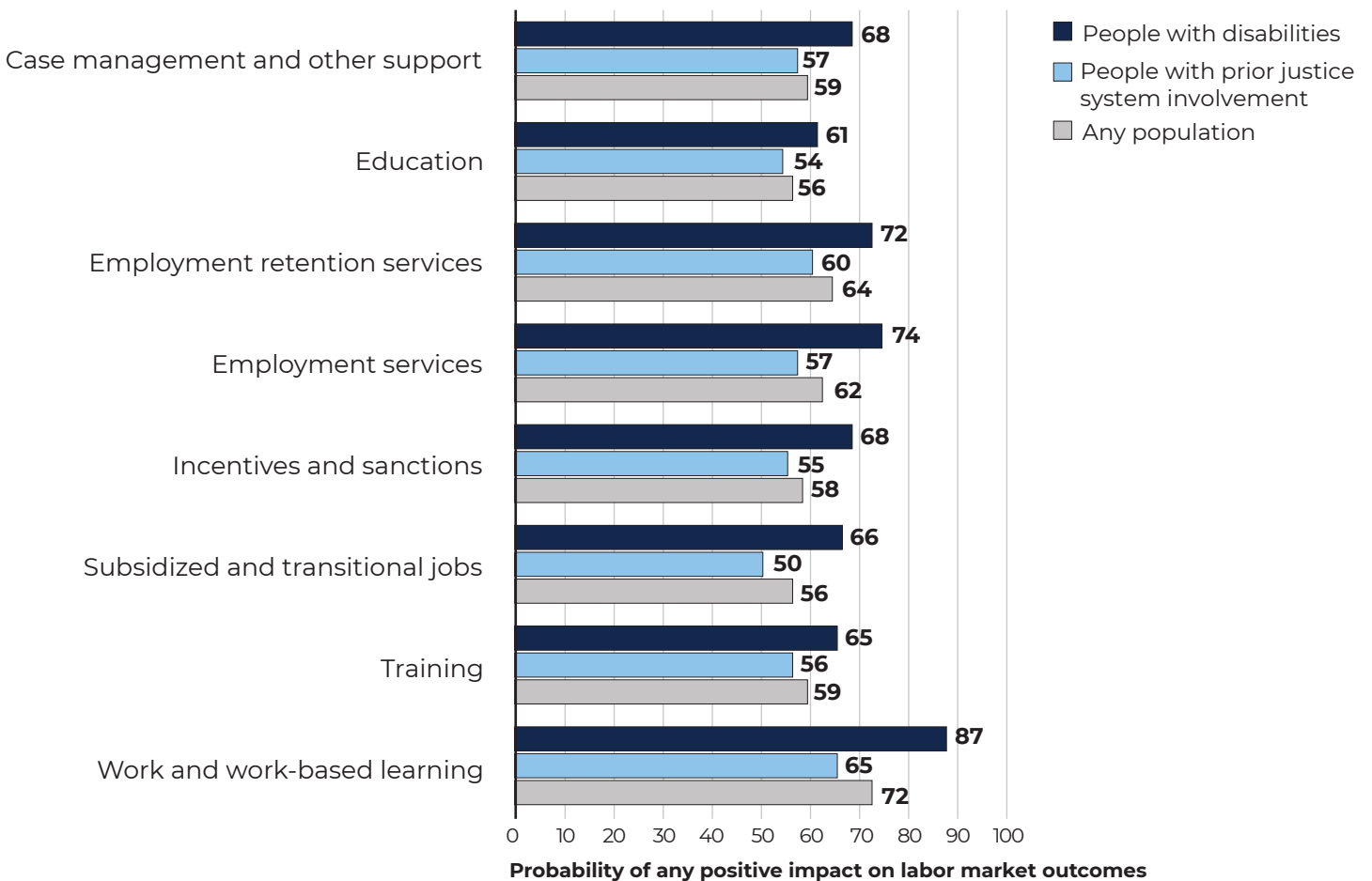
Source: Pathways Clearinghouse database.
Note: Focal populations are defined based on whether a study sample consisted of at least 80 percent of individuals from a given group.

Considerations for using these findings to guide decisions

The findings presented in this report shed light on interventions, services, and combinations of services that are most likely to improve labor market outcomes for people with low incomes. This information can help decision makers, including policymakers, practitioners, and researchers, when determining which services and combinations of services to fund, recommend, implement, or study further. However, there are several limitations to this analysis to keep in mind when using the results for decision making.

Probabilities do not tell us exactly what will happen; they represent the likelihood that an event could happen. Even if a specific intervention or primary service has a high probability of improving outcomes, it will not always improve outcomes or necessarily succeed in every implementation. By definition, a probability of improving outcomes that is less than 100 means there is a chance that the intervention will not improve outcomes. In addition, each intervention varies on a wide variety of characteristics that we did not capture in our model, including implementation features such as the duration of the intervention or participant engagement in the intervention, and contextual factors such as urbanicity or the time period in which the intervention was implemented. Further, the probabilities that we calculated are based on the existing evidence currently catalogued by the Pathways Clearinghouse. If the impacts of primary services on labor market outcomes change systematically over time, the probabilities presented in this report might no longer apply. Policymakers, practitioners, and researchers should consider the contexts and circumstances of implementation when using the results of this report to inform decision making.

The probabilities we calculated are based on reported impacts. This means that researchers' decisions about which findings to report, and which interventions to examine, might create bias in our meta-analytic estimates. For example, it is possible that study authors are more likely to publish favorable findings than other findings, a phenomenon called publication bias. Another similar form of bias might stem from what is called the file drawer problem, which occurs when researchers examine multiple outcomes and choose only to report findings that were successful or favorable. To minimize the influence of publication bias, the Pathways Clearinghouse and this report include findings from both published and unpublished manuscripts. We also include an adjustment in our model for the file drawer problem (see Appendix A for further detail). However, it is possible our results could be affected by bias if researchers choose not to report any findings at all for an intervention that did not have favorable effects.

Our analysis included only specific outcomes. The outcomes and intervention characteristics studied here were limited by those catalogued by the Pathways Clearinghouse. The probabilities we calculated reflect the probability that a study can improve the outcomes reported in our data: employment, earnings, public benefit receipt, or education and training. We did not examine health, well-being, or other important outcomes that employment and training interventions might affect. So although a given primary service or intervention might not have a high probability of improving labor market outcomes, this does not necessarily apply to other types of outcomes.

Studies do not consistently report sample demographics and subgroup impacts. For example, the set of studies that report the race and ethnicity of sample participants might differ in systematic ways from studies that do not report this information. It is also possible that impacts from studies focused on a specific population might differ in other, important ways from those that don't focus specifically on any given population. To better understand the size of impacts for specific groups of people, we would ideally have information on impacts for each population group of interest from every study in which they were part of the sample. These limitations might affect our conclusions about which primary services are effective for certain population groups.

Summary and directions for future research

This analysis has shown that some interventions have high probabilities of improving labor market outcomes for people with low incomes. Twelve of the 127 tested interventions have at least a 90 percent probability of improving outcomes. Interventions focused on work and work-based learning have the highest probability of improving labor market outcomes and are particularly effective when combined with employment services, employment retention services, education, or training. This finding holds across studies with a range of focal populations, including those consisting primarily of people from racial and ethnic minority groups, women, people with disabilities, and people with prior justice involvement.

However, interventions focused on work and work-based learning also are among the least likely to improve outcomes by a substantial amount (by at least $1,000 in annual earnings). Interventions focused on subsidized and transitional jobs, education, or training have the highest probabilities of improving outcomes by at least $1,000 in annual earnings, though no single primary service has more than a 32 percent probability of improving outcomes by this amount. These patterns suggest that interventions focused on work and work-based learning are more likely to have positive impacts that may be small on average, while interventions focused on subsidized and transitional jobs, education, or training are less likely to be effective on average but have more potential for larger impacts (a larger spread in their impacts).

Although our approach enabled us to examine the effectiveness of services for studies that focused on specific groups of people, we were not able to incorporate information about subgroup impacts in studies that did not focus on a specific type of population. To better understand how best to design interventions to improve outcomes for specific population groups, more research is needed to estimate and report the impacts of interventions separately for different groups of people.

Our findings suggest some services and combinations of services are more effective than others in improving labor market outcomes among people with low incomes. However, only four interventions examined have more than a 50 percent probability of improving labor market outcomes by an equivalent of $2,500 or more in annual earnings. More research into these programs is needed to understand how the most highly effective interventions achieved their outcomes.

Box 6. What do the different meta-analyses of the Pathways Clearinghouse tell us?

Another Pathways Clearinghouse meta-analysis, "What Works to Improve Employment and Earnings for People with Low Incomes" (Streke and Rotz 2022), provided key findings describing what works, for whom, and in what contexts. That report examined a comprehensive set of intervention, study, and outcome characteristics to determine which characteristics were associated with better outcomes. These characteristics included the population studied, services offered, participation requirements, intervention length, and other contextual factors.

In this report, we focus on a subset of intervention, study, and outcome characteristics (services, populations of focus, outcome domains, and time horizons) to dig deeper into the effectiveness of specific combinations of these characteristics. We complement the findings from the first meta-analysis, which focused on average intervention effects, to provide estimates of the probabilities that these characteristics, and combinations of features, can improve outcomes in future implementation.

We find that interventions with a primary service of work and work-based learning have the highest probability of improving labor market outcomes. Notably, the earlier Pathways Clearinghouse meta-analysis report, which used a traditional (frequentist) meta-regression approach, also found that interventions focused on work and work-based learning were among the most effective on average compared to other interventions.

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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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