Two-Year Findings from the Evaluation of Breaking Barriers

An Individual Placement and Support (IPS) Program

TECHNICAL APPENDIX

BEES

BUILDING EVIDENCE ON EMPLOYMENT STRATEGIES

Technical Appendix for
Two-Year Findings from the Evaluation of Breaking Barriers
An Individual Placement and Support (IPS) Program

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This appendix provides detail on the analysis model used to estimate impacts with administrative records, presents additional baseline measures and results from a survey response bias analysis, and explores reasons for differences in the evaluation's two sets of impact findings.[1]

MODEL SPECIFICATIONS

The basic estimation strategy is to compare average outcomes for both the program and control groups. Regression adjustment in a linear regression model increases the power of the statistical tests.

The research term processed outcome data from the National Directory of New Hires (NDNH) according to standard procedures to check for outliers or other irregularities. There were four observations with outlier earnings values in one or more quarters; for these observations, the outlier values were imputed with the mean of the remaining earnings values.

The impact analysis based on NDNH data used the following model:

$$Y_{ij} = \alpha + \beta P_{ij} + \delta X_{ij} + \gamma_j + \varepsilon_{ij}$$

where Y_{ij} is the outcome measure of interest (such as "number of quarters employed" or "total earnings") for sample member i in program location j;

β is the estimate of the impact of the program on the average value of the outcome;

P_i is an indicator for membership in the program group;

X_i is the series of variables representing the baseline covariates for sample member i, including years of age (18 to 24, 25 to 34, 35 to 44, or 60 and older); race, or ethnicity (Black, White, Hispanic, or other); whether or not English was the sample member's primary language spoken; whether or not the same member was employed in the prior year; current receipt of SSI, SSDI, or both; current receipt of TANF benefits; whether or not the sample member had a postsecondary degree; whether or not the sample member had any mental health disorder; overall self-reported health (excellent, very good, or good; fair; or poor); and how the mental and physical health statuses (as measured by the SF-12 component summary scores) individually compared with the general population (well below, below, same or better);

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1.   For the final report on the Breaking Barriers evaluation, see Lily Freedman and Megan Millenky, *Two-Year Findings from the Evaluation of Breaking Barriers: An Individual Placement and Support (IPS) Program*, OPRE Report 2022-35 (Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, 2022).

δ is the set of regression coefficients for X_i;

γ represents fixed effects for program locations;

and ε_{ij} is the random error term for sample member i in program location j.

For an observation with a missing baseline covariate (see the list for X_i above), the research team assigned that covariate the average sample value, and created a dummy variable equal to 1 to indicate the covariate was "missing" for that observation. The dummy variable was also included in the analysis model with X_i.

Missing values for outcome variables were not imputed; observations with missing values for an outcome variable were dropped from the impact analysis for that outcome. Less than 10 percent of observations had missing values for any given covariate.

BASELINE CHARACTERISTICS BY RESEARCH GROUP

Appendix Tables A.1 and A.2 present additional baseline characteristics by research group. As expected, due to the study's random assignment design, there were few differences between the two groups.

SURVEY RESPONSE BIAS ANALYSES

The research team fielded a follow-up survey to a subset of the research sample: 995 out of a total of 1,061 sample members. This subset is referred to as the "fielded sample." The survey was not fielded to sample members who reported, at the time of study enrollment, that their English-speaking abilities were limited (about 6 percent of the full study sample). Sample members who were interviewed for the survey are referred to as "survey respondents" or the "respondent sample." A total of 661 sample members responded to the survey, for an overall response rate of 66 percent among the fielded sample. The program group had a slightly higher response rate (68 percent) than the control group (65 percent).[2] See Appendix Figure A.1 for a visual of the different subsets of the study sample.

A survey response bias analysis based on the earlier evaluation findings found that there are limitations in generalizing the survey-based results beyond those who completed the survey.[3] Specifically, there were jointly statistically significant differences in baseline characteristics when comparing the fielded sample with the non-fielded sample, and also when comparing the respondent sample with the remaining study sample (see Appendix Table A.3). Respondents also differed from non-respondents on a few baseline characteristics, but these differences were not

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2. For more information on fielding of the follow-up survey, see Lily Freedman, Sam Elkin, and Megan Millenky, *Breaking Barriers: Implementing Individual Placement and Support in a Workforce Setting* (New York: MDRC, 2019).
3. See Freedman, Elkin, and Millenky (2019) for the specific results from this analysis.

jointly statistically significant. Program group respondents did not differ from control group respondents on baseline characteristics.

Using administrative records from the National Directory of New Hires (NDNH), the research team conducted an additional survey response bias analysis. Appendix Table A.4 presents impacts estimated among just the subgroup of sample members who responded to the survey and compares them with the impacts estimated among the remainder of the study sample (sample members who did not respond to the survey or who were not fielded the survey). Estimated effects were larger among those that did not complete the survey. While these analyses should be considered exploratory, they suggest that the impacts based on administrative data are concentrated in the group of people who did not complete the survey.

Among just the survey respondent sample, there was just one outcome with a difference between the program and control group—earnings in the first follow-up year—which was statistically significant at the 10 percent level. Among those that did not complete the survey, there are statistically significant differences on number of quarters employed, and the employment rate in the first follow-up year. There are also differences in total earnings and earnings over the first follow-up year, which are both statistically significant at the ten percent level. The research team also tested for statistically significant differences between subgroup *impacts* and did not find any.

SUMMARY

As noted in the main text of this report, findings from the impact analysis based on administrative data differed from those based on data from the follow-up survey. The analysis based on administrative data provides a more complete understanding of Breaking Barriers' effects. This section will summarize three reasons for why this may be the case.

First, the survey-based analysis used a subset of the entire study sample. The analysis included only 661 sample members (62 percent of the entire study sample), as 66 sample members were not fielded the survey and 334 participants (who were fielded the survey) did not respond. A variety of factors contributed to the low response rate, such as limited study resources and participants with greater mobility.

Second, the subset of the study sample that the survey analysis focused on had a particular set of characteristics. The survey response bias analysis initially found, as presented in the previous report, that those who completed the survey had statistically significant different characteristics than the remainder of the study sample (see Appendix Table A.3). Unsurprisingly, survey respondents were more likely to speak English: the survey was not fielded to those who could not speak English well enough to complete a survey in the language. Survey respondents were also younger and had higher levels of educational attainment. These characteristics may have made it easier for the control group, even in the absence of the Breaking Barriers services, to find employment and therefore made it more difficult for the research team to detect impacts among this subset of the study sample.

Third, the survey collected self-reported information, and the quality of these data are influenced by a person's memory and willingness to provide such information; NDNH records contain quarterly wage data reported to the Unemployment Insurance (UI) system. However, it is important to note that the survey may have captured some types of employment that are either exempt from reporting to the UI system (such as self-employment or domestic work) or go unreported.

Appendix Table A.1. Characteristics at Study Enrollment, by Research Group

OUTCOME	PROGRAM GROUP	CONTROL GROUP	FULL SAMPLE	
Age (%)				
18-24	12	11	12	
25-34	25	29	27	
35-44	25	23	24	
45-59	32	32	32	
60 and older	6	5	6	
Gender (%)				*
Female	52	57	54	
Male	49	43	46	
Race/ethnicity[a] (%)				*
Hispanic	37	34	35	
White/non-Hispanic	36	44	40	
Black/non-Hispanic	16	13	14	
Other	11	10	10	
Disability type[b] (%)				
Mental health disorder, depression	47	49	48	
Mental health disorder, other psychological disorder	40	36	38	
Substance use	35	34	34	
Musculoskeletal injury or other connective disorder	21	21	21	
Developmental/learning	19	18	18	
Heart condition, blood pressure, or other circulatory system	15	10	13	**
Multiple sclerosis, epilepsy or other nervous system	5	5	5	
Vision	3	4	4	
Cancer/neoplasm	1	2	2	
Hearing	1	1	1	
Other	1	5	5	
Self-reported overall health[c] (%)				
Excellent, very good, or good	82	83	83	
Fair	15	15	15	
Poor	3	3	3	
Mental health status, compared with general population norm[d] (%)				
Well below	27	28	28	
Below	14	11	13	
Same or better	59	60	60	

(continued)

OUTCOME	PROGRAM GROUP	CONTROL GROUP	FULL SAMPLE
Physical health status, compared with general population norm[d] (%)			
Well below	13	13	13
Below	11	12	12
Same or better	75	75	75
Marital status (%)			
Never married	56	53	55
Currently married	18	17	18
Separated, widowed, or divorced	26	29	28
Primary language (%)			**
English	78	82	80
Spanish	13	8	11
Other	9	9	9
Proficiency in English (%)			
Fluent	82	84	83
Somewhat fluent	12	9	11
Not very fluent	5	5	5
Not at all fluent	1	1	1
Highest level of education completed (%)			
Less than a high school diploma	19	18	19
High school diploma or GED certificate	60	62	61
Associate's degree	7	7	7
Bachelor's degree	11	11	11
Graduate degree or PhD	3	2	3
Refugee (%)	7	8	8
Number of children living at home[e]	2	2	2 **
Age of youngest child[f] (%)			
5 and under	49	46	47
6-12 years	33	30	32
13-18 years	12	16	14
19 years and older	7	9	8
Sample size	528	533	1,061

(continued)

Appendix Table A.1 (continued)

SOURCE: MDRC calculations based on data from the Breaking Barriers management information system.

NOTES: Statistical significance levels are indicated as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

   [a]The categories shown here are mutually exclusive.

   [b]Not all of these categories are recognized as disabilities by the Social Security Administration.

   [c]As measured by question 1 in the second version of the SF-12 questionnaire.

   [d]Physical and mental health status was assessed with the second version of the SF-12, standard (four-week recall) version, a validated survey that consists of 12 questions directed toward the respondent. Responses to the SF-12 were scored using Optum PRO CoRE software, which produced normed physical component and mental component summary scores on how these compared with scores for the U.S. 2009 general population.

   [e]Among sample members who have children.

   [f]Among sample members who have children, including those not living at home.

Appendix Table A.2. Benefits and Employment History at Study Enrollment, by Research Group

| OUTCOME	PROGRAM GROUP	CONTROL GROUP	FULL SAMPLE
Ever employed (%)	92	93	92
Ever employed at a job for 6 months or longer (%)	79	81	80
Employed in the past year (%)	43	41	42
Number of months worked in past 3 years (%)			
6 months or less	42	45	44
7 to 12 months	16	16	16
13 to 24 months	11	12	12
More than 24 months	23	19	21
Never worked	8	8	8
Number of children on TANF[a]	2	1	2***
Currently receiving TANF benefits (%)	30	27	28
Length of time receiving TANF benefits (%)			
1 to 6 months	11	11	11
7 to 12 months	5	4	4
13 to 24 months	3	4	3
More than 24 months	11	8	10
Not currently receiving TANF benefits	70	73	72
Currently receiving SSI/SSDI benefits (%)	22	21	22
Length of time receiving SSI/SSDI benefits (%)			
1 to 6 months	2	1	1
7 to 12 months	3	1	2
13 to 24 months	1	1	1
More than 24 months	17	18	17
Not currently receiving SSI/SSDI benefits	78	79	78
Sample size	528	530	1,058

SOURCE: MDRC calculations based on data from the Breaking Barriers management information system.

NOTES: SSI = Supplemental Security Income; SSDI = Social Security Disability Insurance; TANF = Temporary Assistance for Needy Families.
    Statistical significance levels are indicated as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.
    [a]This measure is among participants who have children.

Appendix Figure A.1. Subsets of the Study Sample
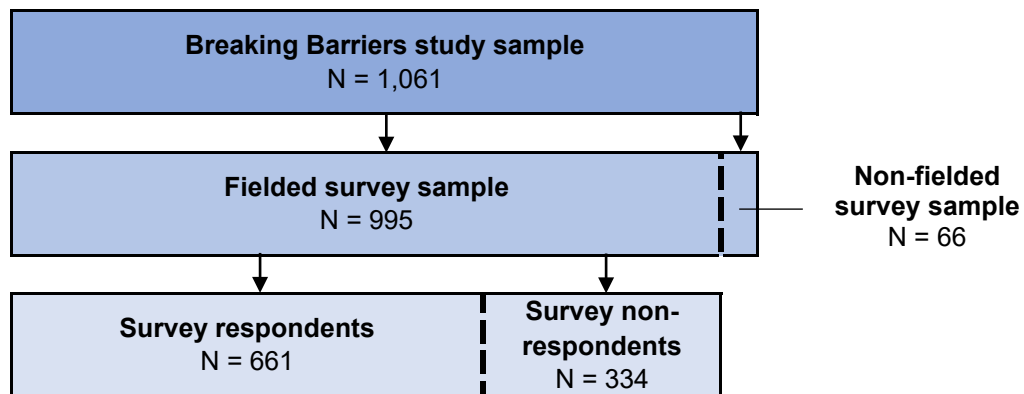
SOURCE: MDRC random assignment system and the Breaking Barriers follow-up survey.

Appendix Table A.3. Selected Baseline Characteristics of Respondents to the 15-Month Survey and Remaining Study Sample

CHARACTERISTIC (%)	RESPONDENTS	NON-RESPONDENTS AND NON-FIELDED	FULL SAMPLE
Male	44	49	46*
Has mental health disorder	62	66	63
Age			***
18-24	14	9	12
25-34	27	27	27
35-44	21	29	24
45-59	32	32	32
60 and older	6	4	6
Race/ethnicity			
Hispanic	36	35	35
White/non-Hispanic	41	38	40
Black/non-Hispanic	13	16	14
Other	10	11	10
Primary language			***
English	85	72	80
Spanish	9	14	11
Other	6	15	9
Highest level of education achieved			***
Less than a high school diploma	15	24	19
High school diploma or GED	62	59	61
Associate's degree	8	6	7
Bachelor's degree	12	9	11
Graduate degree or PhD	3	2	3
Number of months worked in past 3 years			
6 months or less	43	44	44
7 to 12 months	16	17	16
13 to 24 months	12	11	12
More than 24 months	21	21	21
Never worked	9	7	8
Sample size	661	400	1061

SOURCE: Calculations based on data from the Breaking Barriers management information system.

NOTE: Statistical significance levels are indicated as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Appendix Table A.4. Employment and Earnings Impacts, by Survey Response Status

OUTCOME	RESPONDENTS				NON-RESPONDENTS AND NON-FIELDED				H-VALUE
	PROGRAM	CONTROL	IMPACT	P-VALUE	PROGRAM	CONTROL	IMPACT	P-VALUE	
Confirmatory									
Number of quarters employed over two-year period	4.0	3.8	0.1	0.650	4.0	3.3	0.6**	0.032	0.163
Total earnings over two-year period ($)	18,849	16,250	2,598	0.223	19,061	13,740	5,321*	0.068	0.450
Exploratory									
Earnings by follow-up year ($)									
Year 1	8,662	6,733	1,929 *	0.052	8,929	6,067	2,862*	0.053	0.600
Year 2	10,186	9,517	669	0.600	10,132	7,674	2,458	0.119	0.377
Employment at two-year mark (%)	49.0	49.6	-0.6	0.879	44.6	44.4	0.2	0.966	0.898
Employment by follow-up year (%)									
Year 1	66.2	63.3	3.0	0.416	71.0	58.5	12.5***	0.007	0.105
Year 2	61.4	61.8	-0.4	0.913	60.2	55.9	4.3	0.371	0.439
Sample size	335	326			193	207			

SOURCE: National Directory of New Hires (NDNH) and the follow-up survey.

NOTE: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The H-statistic was used to assess whether the difference between subgroup impacts was statistically significant. No statistically significant differences were found between subgroups on any impacts.