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Articles

Changes in accumulated retirement savings, particularly in employer-sponsored defined contribution (DC) plan balances, differ by worker earnings levels. Earnings shocks, portfolio diversification, and employer contributions to workers' DC plans affect retirement savings for lower earners more than for higher earners. The authors match Survey of Income and Program Participation data to Social Security Administration earnings records and find factors underlying the different retirement savings outcomes by earnings level beyond mere differences in earnings.

This article summarizes findings from randomized controlled trials of six Youth Transition Demonstration projects that were funded by the Social Security Administration. The projects provided specialized employment-focused services and enhanced disability program work incentives for youths aged 14–25 with disabilities. Three of the projects had positive and statistically significant effects on employment rates in the third year after youths enrolled in project evaluations.

The Social Security Administration funded the West Virginia Youth Works intervention as part of the Youth Transition Demonstration (YTD) to improve the employment and independent-living outcomes of youths with disabilities. This project was one of six that constituted the full YTD evaluation. This article examines Youth Works implementation and outcomes to provide a potential case study for other states interested in expanding services to youths with disabilities.

Retirement Savings Inequality: Different Effects of Earnings Shocks, Portfolio Selections, and Employer Contributions by Worker Earnings Level

by Joelle Saad-Lessler, Teresa Ghilarducci, and Gayle L. Reznik*

After the Great Recession of 2007–2009, 64 percent of higher-earning workers and 56 percent of lower earners experienced increases in their accumulated retirement savings. For our 2009–2011 study period, we match Survey of Income and Program Participation data to Social Security Administration earnings records to examine retirement savings outcomes by earnings level and to identify factors that may underlie differences. The number of years with an earnings loss of 10 percent or more, the number of nonemployment spells, a decrease in employer contributions to a worker's defined contribution retirement plan, and less diversified investment portfolios barely affect the accumulated savings of higher earners, but are associated with decreased savings for lower earners. These differences may contribute to a growing retirement wealth gap.

Introduction

This study examines how the accumulated discretionary retirement savings of workers differed by earnings level in the first years after the Great Recession. We look specifically at workers' combined holdings in individual retirement accounts (IRAs), Keogh plans, and, in particular, employer-sponsored defined contribution (DC) plans.[1] Analyzing the economic experiences of workers during 2009–2011 reveals that higher earners were more likely to accumulate greater retirement savings than lower earners were. Sixty-four percent of workers at the top of the earnings distribution experienced an increase in retirement savings compared with 56 percent of those at the bottom. Higher earners may have fared better because of more favorable economic and life events and because higher and lower earners exhibit different voluntary contribution behaviors (Gist and Hatch 2014).

This study uses panel data to investigate changes in retirement savings from 2009 through 2011, and the determinants of those changes, by workers' earnings levels.[2] Understanding how workers' earnings levels predict their ability to increase their retirement savings could inform changes to DC plan features that might help lower earners save in volatile economic conditions and slow or reverse the growth in the retirement wealth gap.

We report four key findings. First, each instance of annual earnings loss of 10 percent or more through 2009 was associated with a loss of retirement savings of $450 during 2009–2011 for lower earners, while the effect was negligible for higher earners. Second, for every week a worker was not employed during 2009–2011, lower earners lost $55 in retirement savings, but

Selected Abbreviations	
DC	defined contribution
IHS	inverse hyperbolic sine
IRA	individual retirement account
IV	instrumental variable

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nonemployment spells did not affect higher-earning workers' savings. Third, diversification in retirement-asset allocation increased the savings of lower earners but had no significant effect on higher earners' savings.[3] And fourth, employer contributions increased lower earners' DC plan wealth but had no significant effect on higher earners' DC plan wealth.

This article consists of six sections, beginning with this introduction. The second section describes the importance of examining changes in retirement savings for workers of different earnings levels; the third and fourth sections respectively describe the data and the estimation strategies. The fifth section presents the results of decomposition and regression analyses and discusses the robustness checks; the final section examines policy implications and concludes.

Factors Affecting Retirement Savings Differ by Earnings

Previous studies have examined how earnings affect retirement wealth accumulation. Dushi, Iams, and Tamborini (2011) reported that earners at the lower end of the earnings distribution are much less likely to participate in DC pensions, and that those who do participate contribute a lower share of their earnings than higher earners do. Smith, Johnson, and Muller (2004) found that retirement-plan participation rises with increases in own earnings, family income, and age; and with being a homeowner, the birth of a child, and having a spouse with health problems. Conversely, changing jobs, having unemployment spells, and having greater numbers of children reduced participation. That study also found that retirement-plan participation responds to plan design features, such as whether loans are allowed and whether the employer matches contributions. Dushi, Iams, and Tamborini (2013) were the first to evaluate the effect of a significant earnings loss—defined as a drop of 10 percent or more—on retirement savings. They found that DC plan participants experiencing such a significant earnings loss during the Great Recession of 2007–2009 were more likely to have stopped contributing to their plan by 2009 than were those with stable earnings, and that overall, their

contributions decreased substantially. Dushi and Iams (2015) similarly found that significant earnings losses and job changes depressed contributions during the Great Recession and in the preceding 2-year period. In Ghilarducci, Saad-Lessler, and Reznik (2017), we found that inertia in contribution behavior depended on whether workers' earnings decreased or increased during 2009–2011.

This study expands the understanding of the role of earnings in retirement wealth accumulation beyond DC plan participation and contribution rates. Using panel data from the Survey of Income and Program Participation (SIPP), we identify how workers' earnings levels affected the resilience of their retirement savings accumulation during 2009–2011.

Data

We construct a study sample from SIPP data matched to Social Security Administration (SSA) longitudinal earnings records. We merge data from waves 1 through 11 of the 2008 SIPP panel and identify respondents who remained continuously in the sample, were aged 25–61 in 2009, had nonzero retirement savings in 2009, and worked in both 2009 and 2011.

Data on retirement savings are from responses to SIPP wave 4 and wave 10 questions about the market value of IRA, Keogh plan, and DC plan (such as 401(k), 403(b), and thrift plan) account balances held by respondents in 2009 and in 2011. Data on DC plan design features, including plan type, employer contribution provisions, preretirement loan provisions, and choice of investment allocation are from the SIPP Retirement Expectations and Pension Plan Coverage modules, which were fielded in waves 3 and 11 (in 2009 and in 2011–2012, respectively). The combined data on pension plan design features from wave 3 and on retirement savings from wave 4 are compared with combined data on savings from wave 10 and design features from wave 11.[4] This process yields panel data on changes in retirement savings and pension plan design features over a 3-year period. Details on variable construction are available in Appendix A.

A 3-year panel is short—which limits opportunities to make definitive conclusions—but it contains high-quality comprehensive data on the determinants of short-term changes in retirement savings. One particular advantage of using the 2008 SIPP panel is that it fielded the Retirement Expectations and Pension Plan Coverage module in two waves, providing longitudinal data on every aspect covered therein. Previous SIPP panels fielded that rich module only once.

To maximize the accuracy of the survey results, SIPP respondents are asked to check their records before they begin answering questions regarding their income.[5] Respondents can report the value of their retirement accounts as a number or a range, and when they provide a range, we impute the precise value. In our sample, about 50 percent (or more) of IRA, Keogh, and DC plan account balances are imputed (Table 1). Notwithstanding the need for some imputations, the SIPP offers the best panel data available for workers aged 25–61 because, along with demographic information, it includes characteristics of each person's DC plan, including asset allocation and contribution rates and levels.

Table 1 also shows that the majority of SIPP respondents in the 2008 panel had nonzero balances in DC plans (84 percent in 2009, 75 percent in 2011). Close to half held IRAs (45 percent in 2009, 43 percent in 2011) and negligible shares held Keogh accounts (3 percent in 2009 and 1 percent in 2011). We restricted the study sample to respondents with a nonzero balance in 2009 in any of these types of retirement savings.

Finally, Table 1 shows that DC plan wealth dominated the average balances of the three savings vehicles, accounting for about two-thirds of retirement savings, followed by IRAs (about one-third), then Keogh plans (less than 2 percent). Not surprisingly, the average nominal dollar amounts of account-balance changes during 2009–2011 were ranked in the same order.

The linked SSA records (which are based on Internal Revenue Service Form W-2 records) contain data on current and lifetime earnings and annual employee contributions to DC retirement plans.[6] The SSA records allow us to calculate the number of years in which a person's annual earnings fell by 10 percent or more and the standard deviation (or volatility) of annual earnings over the person's working life.

We also use the SSA data to calculate the earnings brackets, changes in earnings, and employee DC plan contribution rates and amounts for 2009, 2010, and 2011. Employer contribution rates are self-reported by SIPP respondents and employer contribution amounts are derived from those SIPP data.[7] Withdrawals, rollovers, and DC plan balances in 2009 and 2011 are also from the SIPP data.

The 2008 SIPP panel contains 36,578 persons who were surveyed continuously from 2008 through 2012 and who had matched records in the administrative data. Of these, 19,017 persons had jobs in 2009 and 2011 and 10,554 had nonzero retirement savings in 2009. Restricting the sample to those who were aged 25–61 in 2009 leaves us with a sample of 9,508 respondents.

We divide earners into three groups based on the 2009 bend points for the Social Security retirement benefit formula.[8] Lower earners, comprising the bottom 55 percent of the earnings distribution, earned less than $53,796; higher earners, making up the top 12 percent of the earnings distribution, earned more than $106,800 per year.

Estimation Strategies

This section describes the decomposition and regression analyses. It also discusses the inverse hyperbolic sine (IHS) transformation of DC plan wealth, the possible endogeneity of employer contributions, proxies for portfolio allocation, and the descriptive data.

Table 1.
Selected characteristics of SIPP respondents' retirement savings, by plan or account type, 2009 and 2011

Characteristic	DC plan	IRA	Keogh plan
Percentage reporting plan balances within a range of values (data requiring imputation)			
2009	50	46	72
2011	54	51	68
Percentage with a nonzero account balance			
2009	84	45	3
2011	75	43	1
Average account balance (current $)			
2009	40,818	19,459	1,207
2011	47,812	24,742	741
Change 2009–2011	6,994	5,283	-466

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

Decomposition Analysis

Factors affecting DC plan wealth include employee and employer contribution rates, account withdrawals, and rollovers related to job changes. Additional factors affecting DC plan wealth include management fees and the market performance of plan holdings; we refer to these factors as portfolio allocation effects. We use a decomposition analysis to evaluate the effect of each factor on DC plan wealth changes. Specifically, we divide the dollar amount of each of the following factors by the change in DC plan wealth from 2009 to 2011: employee contributions; employer contributions; plan withdrawals; rollovers; and residual effects, combining DC plan balance changes attributable to all other factors.

We measure the effect of each determinant of change in DC plan wealth during 2009–2011 for two groups: workers whose plan balance increased and those whose balance decreased.

Regression Analysis

An ordinary least squares (OLS) regression identifies the factors affecting retirement savings of higher and lower earners using a model described in the following equation:

$$\sinh^{-1}(Y) = a + bX + e,$$

where Y is the change in retirement savings during 2009–2011, $\sinh^{-1}(Y)$ is the IHS transformation of Y, and e is an error term. X comprises determinants of changes in DC plan wealth, including the employee and employer contribution rates in 2009, changes in the employee and employer contribution rates during 2009–2011, and measures of portfolio allocation in 2009. As noted above, the latter reflect market gains or losses and management fees.

Very few people withdrew funds or rolled their accounts over in the study period, but when positive withdrawals and rollovers were reported, the values were extreme; therefore, we do not include indicators of withdrawals and rollovers in the regressions.[9] The model is run separately for workers in the bottom 55 percent of the earning distribution and those in the top 12 percent to identify how the structure of DC plans and life events interact differently for higher and lower earners.

The "Difference in Initial Wealth" Problem

Pence (2006) noted the possible problem in evaluating changes in levels of wealth when initial levels of wealth are not the same across groups and when asset values change over time.[10] We address the difference in initial wealth by transforming changes in DC plan holdings using the IHS transformation (Burbidge, Magee, and Robb 1988; Pence 2006). The IHS transformation is similar to the log transformation used by Poterba, Venti, and Wise (2015), but IHS allows for negative values of the transformed variable. Our dependent variable is negative when DC plan wealth decreases over the study period (which occurs for almost half of the sample), making a log transformation impractical. The IHS transformation scales the change in DC plan wealth to the initial balances, and thereby reduces the influence of outlying values of the dependent variable. This approach also reduces the effect of measurement error in self-reported DC plan balances and changes to that wealth.

The coefficients estimated from the regression equation are converted into marginal effects using median values of DC plan wealth, which further reduces the effect of outlying values of the dependent variable. Standard errors for the marginal effects are computed using a bootstrap method with 50 replications.

Employer Contributions

Errors in employer contributions arise because those data are self-reported by workers rather than the employers themselves. If the reporting errors are random, they are absorbed in the error term and do not induce bias in the estimated coefficients. However, if self-reported errors are correlated with earnings, the estimated coefficients are biased. Such reporting errors may be endogenous if, for example, higher earners pay closer attention to their retirement accounts than lower earners do and therefore report their employers' contributions more accurately. We test for the endogeneity of self-reported employer contribution rates using average employer contribution rates and the shares of workers with nonzero employer contributions for each state, industry, and education level as instruments for employer contribution rates. If we cannot reject the null hypothesis, that means the employer contribution rate is exogenous. For the sample of lower earners, we cannot reject the null hypothesis that employer contributions are exogenous because the results of an instrumental variable (IV) corrected approach do not differ significantly from those of an OLS approach. We use OLS regression for the lower-earner sample because it yields more efficient estimates than IV regression does. For the sample of higher earners, we reject—at the 1 percent level—the null hypothesis that

employer contributions are exogenous. Therefore, for this sample, we use instruments for employer contributions in an IV regression.

Portfolio Allocation Proxies

The SIPP asks respondents how their IRA, Keogh account, and DC plan balances are invested. For each account type, a respondent may report up to four investment choices, but not the amounts invested, which limits our knowledge of workers' portfolio allocation. Given this limitation, we create a variable measuring the degree of risk, with which we classify portfolio investment choices as either "safe" or "involving some risk."[11] The number of investment types reported indicates the portfolio's diversification.

We supplement the portfolio risk and diversification measures with indicators of a worker's risk and return preferences. These include the number of years in which a worker lost more than 10 percent of earnings through 2009 and of weeks not worked during 2009–2011, as well as educational attainment, retirement savings as of 2009, lifetime earnings, and home equity. We regard these factors as indicators of risk tolerance because they reflect either an appetite for risk or an ability to withstand negative financial outcomes.

We also consider the change in the number of children living in the family and the worker's responsibility for the household's financial well-being—the latter measured as a household income ratio, or the worker's personal income as a percentage of household income. These factors may indicate the presence of or changes in liquidity constraints, which can affect risk-taking and lead to more or less conservative investment strategies.

Having high or low earnings affects wealth accumulation in textured and complicated ways. Access to trusted and accurate financial information and networks depends in part on socioeconomic status and community (Chong, Dow, and Phillips 2010). Compared with nonwhite workers, those who are white tend to have more access to and engagement with financial institutions and social networks and better information about investing; these factors may in turn affect the level of fees and the composition of the portfolio.

The effect of having a business degree[12] also varies by earnings class, though it is treated uniformly as a proxy for financial literacy regardless of socioeconomic class. Financial literacy is linked to choosing appropriate savings rates and asset allocations, discerning fees, and assessing risk (Lusardi and Mitchell 2014).

Descriptive Data

Higher earners were more likely than lower earners to have their retirement savings increase from 2009 to 2011 (64 percent versus 56 percent; Table 2). This was because the average DC plan contribution rate for higher earners in 2009 (6.11 percent of earnings) was more than twice that for lower earners (2.80 percent). In addition, the employers of higher earners also contributed at a higher average rate (2.86 percent) than did employers of lower earners (2.15 percent).

Eighty-six percent of higher earners held investments involving some risk, compared with 82 percent of lower earners. Higher earners can presumably take on more risk because they have fewer liquidity constraints and more financial information. Higher earners also have more diversified portfolios (averaging 2.02 asset types) than lower earners (1.49 asset types). To the extent that risk exposure yields higher returns and that diversification protects against market losses, the differences in risk and diversification choices contribute to a greater likelihood of an increase in retirement balances for higher earners than for their lower-earning peers.

Factors associated with lower retirement savings include having educational attainment of less than an associate's degree, being female, being unmarried, having been divorced, being in poor health, having received means-tested transfer payments, working at a small firm, working part-time, and having a short job tenure (Johnson, Mermin, and Uccello 2006; Smith, Johnson, and Muller 2004; Tamborini, Purcell, and Iams 2013). Lower earners are more likely to have these characteristics than are higher earners.

Table 2 shows that lower earners had more time (3.37 weeks) not employed during 2009–2011 than higher earners had (1.66 weeks). The majority of nonemployment spells reflected time spent out of the labor force as opposed to time unemployed.[13] Workers in poor health, who were relatively older, and who increased their educational attainment were more likely to have had nonemployment spells whereas higher earners, workers with longer job tenure, those caring for more children, and those who earned a larger share of the household income were less likely to have had any nonemployment spells from April 2009 to March 2012 (Table 3).

Lower earners experienced more years with a significant earnings loss over their working lives (5.25 on average) than higher earners did (4.60; Table 2).[14] Workers in relatively poorer health, with more children living with them, and who had more divorces

Table 2.
Summary statistics for lower- and higher-earner study samples

Variable [a]	Lower earners		Higher earners		Difference in means
	Mean	Standard error	Mean	Standard error	
	Retirement savings characteristics				
Percentage of workers whose retirement savings increased during 2009–2011	56		64		. . .
Accumulated savings ($)	34,137	55,668	147,787	137,650	113,650***
DC pension plan contribution rate (%) of—					
Employee	2.80	4.68	6.11	5.47	3.31***
Employer	2.15	5.93	2.86	6.41	0.71***
Percentage-point change during 2009–2011 in DC pension plan contribution rate of—					
Employee	0.13	2.94	-0.06	3.78	-0.19*
Employer	0.46	7.92	0.22	6.8	-0.24
Percentage of workers whose retirement investments involve some risk	82	38	86	35	4***
Number of retirement asset types	1.49	0.90	2.02	1.19	0.53***
	Sociodemographic characteristics				
Percentage—					
With associate's degree or higher	59	49	90	30	31***
With business degree	11	31	24	43	13***
Female	57	50	24	42	-33***
Married	66	47	80	40	14***
White with U.S. citizenship	78	42	80	40	2**
Self-reporting fair or poor health; or having a mental or work-limiting or -preventing disability	8	27	3	16	-5***
Who have ever received transfer payments	8	28	2	14	-6***
Home equity ($)	44,247	73,606	107,350	114,139	63,103***
Number of times divorced	0.20	0.48	0.14	0.41	-0.06***
Number of own children living with the family	0.95	1.09	1.19	1.17	0.24***
Household income ratio (personal income as a percentage of household income)	[b] 58.32	[b] 32.71	80.63	22.09	22.31***
	Job/career characteristics				
Percentage—					
Working at a large firm (100+ employees) [c]	66	47	77	42	11***
Usually working at least 35 hours per week	81	39	87	34	6***
Unionized	15	36	7	26	-8***
Job tenure (years)	8.90	7.95	11.61	8.94	2.71***
Weeks not worked during 2009–2011	3.37	12.51	1.66	7.29	-1.71***
Years with an earnings loss ≥ 10 percent	5.25	3.40	4.60	3.05	-0.65***
Change in earnings during 2009–2011 ($)	3,100	19,251	6,281	177,759	3,181
Lifetime earnings ($)	820,108	605,518	3,243,030	2,455,141	2,422,922***
Volatility of annual earnings ($)	[d] 16,138	[d] 27,367	76,934	76,958	60,796***

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTES: Numbers of observations are 5,139 (lower earners) and 1,083 (higher earners), unless otherwise noted.

. . . = not applicable.

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. As of 2009, unless otherwise noted.

b. Based on 5,125 observations.

c. Based on 5,059 lower-earner observations and 1,071 higher-earner observations.

d. Based on 5,138 observations.

Table 3.
OLS regression estimates of determinants of work interruptions and earnings losses

Category and determinant [a]	Nonemployment spells (weeks not employed April 2009–March 2012)		Earnings shocks (years with earnings loss ≥ 10 percent)	
	Coefficient	Standard error	Coefficient	Standard error
Incremental variables				
Health				
Years since start of long-term work-limiting disability	-0.13*	0.07	0.02	0.02
Demographics				
Number of own children living with the family	-0.23**	0.11	0.12***	0.03
Number of divorces	-0.03	0.24	0.32***	0.06
Years of age	0.02*	0.01	0.21***	0.00
Change in the number of children living with the family during 2009–2011	0.13	0.28	0.13**	0.07
Job				
Job tenure (years)	-0.10***	0.01	-0.08***	0.00
Finances				
Household income ratio (worker income as a percentage of household income) [b]	-0.01**	0.00	0.00***	0.00
Home equity ($10,000)	0.00	0.00	0.00***	0.00
Categorical variables				
Health				
Experienced change in health condition	0.68	0.44	0.47***	0.11
Poor health (self-reported)	1.43***	0.55	0.46***	0.13
Education				
Has associate's degree or higher	0.24	0.25	0.32***	0.06
Increased attainment level during 2009–2011	1.45***	0.58	0.10	0.14
Has business degree	-0.39	0.33	-0.18**	0.08
Demographics				
Is female	0.00	0.24	-0.26***	0.06
Is married	-0.19	0.28	-0.28***	0.07
Is white	-0.03	0.29	0.26***	0.07
Is a U.S. citizen	-0.81	0.70	1.84***	0.17
Job				
Works at a large firm (100+ employees)	0.04	0.25	-0.93***	0.06
Usually works 35 or more hours per week	0.26	0.29	-0.35***	0.07
Finances				
Is a higher earner	-0.80***	0.18	-0.60***	0.04
Has ever received transfer payments	0.08	0.46	0.84***	0.11
Has ever received lump-sum pension payment	0.03	0.33	-0.23***	0.08
Intercept	4.90***	1.03	-3.82***	0.25
R²	0.01		0.41	

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTES: Number of observations = 9,231.

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. As of 2009, unless otherwise noted.

b. Percentage-point increments.

had experienced more episodes of significant earnings loss over their careers (Table 3). Being a higher earner, having a business degree, working full time in a large firm, having long job tenure, and being married and female decreased the likelihood of suffering episodes of earnings loss over one's career. Age was associated with more years with significant earnings loss because older workers have had more time to experience such episodes. Earnings losses were also more common among workers with an associate's degree or higher—probably because they had left employment to attend school. Being a recipient of transfer payments was associated with more episodes of earnings loss, but any causation is likely in the opposite direction because workers whose earnings decrease are more likely to be eligible for aid. White workers and U.S. citizens reported more episodes of earnings loss than nonwhites and noncitizens. This may reflect a greater tendency of nonwhite and noncitizen workers to engage in informal labor markets with unreported earnings; the volatility of their actual earnings would therefore not be indicated in the administrative data.

Results

This section reports the results for the decomposition analysis and regressions, as well as the robustness checks of the results.

Decomposition Results

The decomposition reveals that among workers whose DC plan balances increased, employee and employer contributions were more important than portfolio allocation effects in explaining the change (Table 4). However, among workers whose balances declined, portfolio allocation effects dominated the change: They accounted for 373 percent of the total loss for lower earners and for 221 percent of the loss for higher earners. At the same time, employer contributions were more instrumental in holding back losses for lower earners than for their higher-earning peers; they represented a −160 percent counterweight to the overall loss for lower earners and −86 percent for higher earners.[15] Withdrawals explained 6 percent of the loss for lower earners but had no significant effect on DC plan balances among higher earners. (Rollovers had no effect

Table 4.

Decomposition estimates for causes of change in retirement savings for lower and higher earners with an increase or a decrease in DC plan balance during 2009–2011

Variable	Lower earners		Higher earners		Difference in means
	Mean effect (%)	Standard error	Mean effect (%)	Standard error	
Workers with increase in DC plan balance					
Portfolio allocation effects [a]	-30	24.55	-37	6.18	7
Plan withdrawals	-1	0.19	0	0.08	1*
Employee contributions	64	15.97	104	5.60	40
Employer contributions	67	14.88	33	1.30	34
Observations	2,759		649		. . .
Workers with decrease in DC plan balance [b]					
Portfolio allocation effects [a]	373	47.51	221	4.48	152*
Plan withdrawals	6	1.12	0	0.01	6***
Employee contributions	-160	37.35	-86	3.16	74
Employer contributions	-118	29.15	-35	1.51	83*
Observations	2,257		389		. . .

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTES: Rounded mean-effects percentages do not necessarily sum to 100.

. . . = not applicable.

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. Portfolio management fees and market performance.

b. Mean-effect percentages indicate factor contributions to the loss in DC plan value; thus, positive percentages indicate DC plan losses and negative percentages indicate plan gains.

and are not reported.) Among workers who experienced balance gains, the decomposition found that withdrawals were more pronounced for lower earners than for higher earners but no other factors differed significantly.

Regression Results

Table 5 shows estimates of the statistically significant determinants of change in retirement savings separately for lower and higher earners.[16] The regression results reveal that for each year a lower-earning worker had experienced an earnings drop of 10 percent or more through 2009, her or his retirement savings declined by $450 during 2009–2011. Recall that lower earners averaged about 5 years with significant earnings losses over their career (Table 2) so their average retirement savings were reduced by a total of about $2,250 because of these earnings shocks.[17] Note that the earnings-loss effect on retirement savings is limited to lower earners because the effect is not statistically significant for higher earners.

Table 5.
Regression-estimated changes in retirement savings during 2009–2011 attributable to selected factors: IHS results, lower and higher earners (2011 dollars)

Determinant [a]	Lower earners [b]		Higher earners [c]	
	Coefficient	Standard error	Coefficient	Standard error
Incremental variables				
Years with earnings loss ≥ 10 percent (lifetime)	-450***	139	-75	851
Weeks not employed 2009–2011	-55**	27	-339	310
Number of retirement asset types held in portfolio	1,194***	487	1,277	1,286
DC pension plan contribution rate [d] of—				
Employee	729***	91	1,077***	359
Employer	182**	88	-54	459
2009–2011 increase in DC pension plan				
contribution rate [d] of—				
Employee	360***	127	705	471
Employer	141*	75	200	349
Lifetime earnings ($10,000)	66***	18	39	25
Change in number of children living with the family				
during 2009–2011	1,568**	714	-579	4,201
Household income ratio (worker income as a				
percentage of household income) [d]	-28***	10	-79	88
Retirement savings ($10,000)	-2,099***	85	-2,399***	156
Home equity ($10,000)	199***	56	367**	155
Categorical variables				
Respondent—				
Is white and a U.S. citizen	4,054***	792	11,118**	5,048
Has associate's degree or higher	1,669**	755	14,439***	5,359
Observations	5,045		1,071	
R^2	0.23		0.20	

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTES: Table omits variables for which results were not statistically significant.

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. As of 2009, unless otherwise noted.

b. Data are OLS regression estimates for workers in the lowest 55 percent of the earnings distribution. Testing the hypothesis that variables are exogenous, Durbin χ^2 = 1.69, p = 0.43 and Wu-Hausman F = 0.84, p = 0.43.

c. Data are IV regression estimates for workers in the highest 12 percent of the earnings distribution. Instruments for employer contribution include average employer contribution rates for a participant's state, industry, and education level; and the fraction of workers with nonzero employer contributions at the state and industry-education levels. Testing the hypothesis that variables are exogenous, Durbin χ^2 = 12.87, p = 0.0016 and Wu-Hausman F = 6.29, p = 0.0019. Testing for overidentifying restrictions, Sargan χ^2 = 4.06, p = 0.40 and Basman χ^2 = 3.93, p = 0.41.

d. Percentage-point increments.

For each week a lower-earning worker was not employed during 2009–2011, retirement savings decreased by $55. Because lower earners were not employed for an average of about 3 weeks in 2009–2011, the total average reduction in their retirement savings was $165. Note, again, that statistically significant negative effects of nonemployment spells on retirement savings were limited to lower earners.

For each type of asset that workers held in their portfolios, lower earners gained, on average, $1,194 in account value. Because the lower earners invested in an average of 1.5 asset types, their total average increase in retirement savings was $1,791. This diversification effect was only significant for lower earners.

White citizens had average retirement-savings increases from 2009 to 2011 of $4,054 for lower earners and $11,118 for higher earners. We attribute these increases in large part to portfolio allocation because white workers are associated with having greater access to a network of potential advisors on portfolio choices (Chong, Dow, and Phillips 2010).[18]

Each percentage point in employee contribution rates to DC pension plans in 2009 was associated with increases in retirement savings during 2009–2011 of $729 and $1,077 for lower and higher earners, respectively. Because lower earners contributed an average of 2.8 percent and higher earners contributed 6.1 percent, the total average contribution-rate effects were $2,041 for lower earners and $6,570 for higher earners. The change in low-earner employee contribution rates during 2009–2011 was associated with a $360 increase in retirement savings. Given the 0.13 percentage-point average increase in the employee contribution rate among low earners, their savings increased by an average of $47 over the period.

Each percentage point in 2009 employer contribution rates was associated with significantly higher retirement savings for lower earners only, in the amount of $182. Because the average employer contribution rate for low earners was 2.15 percent, the total average increase for lower earners was $391. Per percentage point, the change in employer contribution rates during 2009–2011 led to an additional $141 for low earners, which added $65 to their mean retirement savings because their average employer contribution rate increased by 0.46 percentage points. The significant effects of employer contribution rates—both their initial levels and their increases—highlight their importance in helping lower earners save for retirement.

Higher education, measured as having at least an associate's degree, led to a $14,439 increase in retirement savings for higher earners, but the effect was a much smaller $1,669 for lower earners. Interestingly, having a business degree did not boost retirement savings (not shown).

Lifetime earnings affected the retirement savings of lower earners only. For each $10,000 in lifetime earnings, lower earners' savings increased by $66. The average lifetime earnings of lower earners ($820,108) resulted in a total average change of $5,412.

Adding children to the family during 2009–2011 was associated with a $1,568 average increase in the retirement savings of lower earners for each child, but was not associated with an increase for higher earners. Previous studies (Smith, Johnson, and Muller 2004; Butrica and Smith 2014) found that the birth of a child positively affects retirement-plan participation and contributions; those studies did not differentiate workers by earnings level.

The household income ratio—the respondent's personal income as a percentage of total household income—fluctuates when the partner's income changes. Higher ratios may reflect liquidity constraints on workers' ability to contribute to their retirement accounts, resulting in smaller retirement wealth accumulation. For each percentage point in the household income ratio, balances for low earners declined by $28. Given the mean ratio of 58.32 percent among low earners, the total average decline in retirement savings attributable to their household income ratio was $1,633. This result was not duplicated for higher earners, who are less likely to face liquidity constraints.

Higher initial retirement savings were associated with larger losses, a result also found in Gustman, Steinmeier, and Tabatabai (2012). We find that lower earners suffered a loss of $2,099 for every $10,000 of retirement wealth held in 2009, while higher earners experienced a loss of $2,399 for every $10,000 of retirement balances held in 2009. Because lower earners in 2009 held average retirement savings of $34,137 and higher earners held $147,787, the total average loss was $7,165 for lower earners and $35,454 for their higher-earning counterparts. These results probably reflect the greater exposure of higher initial balances to market swings and portfolio losses in a downturn.

Finally, every $10,000 of home equity was associated with increases in retirement savings of $199 and $367 for lower and higher earners, respectively. With

average home equities of $44,247 for the former and $107,350 for the latter, the resulting total average increases were $880 for lower earners and $3,940 for higher earners. Because respondents can borrow against their home equity or sell the house and convert equity to cash, home equity can indicate the presence of liquidity constraints. This effect is more potent for higher earners, who typically have higher average home equity values and can lever that equity to contribute more toward their retirement accounts. Lower earners may have more pressing priorities that limit their opportunities to save for retirement.

Robustness Checks

We test for the robustness of the findings by dividing the sample into two age groups and examining whether the results remain statistically significant. Table 6 presents the results, omitting all determinants with no significant associations for either lower or higher earners. Among lower-earning workers aged 25–49, each year of substantial earnings loss (10 percent or more) reduced retirement savings by $550, while each week not employed over the study period reduced savings by $92. For each type of asset held in one's portfolio, savings increased by $785. These results are statistically significant for lower earners aged 25–49 (and for the entire sample of lower earners), but not for higher earners.

Among lower-earning workers aged 50–61, each year with substantial earnings loss reduced retirement savings by $398. The number of weeks not employed in 2009–2011 had no significant effect on savings for this group and is omitted from the age 50–61 panel. For each type of asset held, savings increased by $1,946, a much larger increase than we see for younger workers, who had less money invested. Again, these results are statistically significant for lower earners, but not for higher earners.

Table 6.
Robustness check: Regression-estimated changes in retirement savings during 2009–2011 attributable to selected factors: IHS results, lower and higher earners, by age group (2011 dollars)

Determinant [a]	Lower earners [b]		Higher earners [c]	
	Coefficient	Standard error	Coefficient	Standard error
Age 25–49				
Incremental variables				
Years with earnings loss ≥ 10 percent (lifetime)	-550***	198	411	1,243
Weeks not employed 2009–2011	-92***	28	-363	461
Number of retirement asset types held in portfolio	785*	416	-579	2,489
DC pension plan contribution rate [d] of—				
Employee	750***	134	1,788***	575
Employer	172**	78	18	924
2009–2011 increase in employee DC pension plan contribution rate [d]	422***	169	1,499**	767
Lifetime earnings ($10,000)	75**	32	-9	63
Household income ratio (worker income as a percentage of household income) [d]	-25**	11	138	124
Retirement savings ($10,000)	-2,475	138	-2,729***	243
Home equity ($10,000)	247	96	241	260
Categorical variables				
Respondent—				
Is white and a U.S. citizen	3,263	707	10,249	6,650
Participates in a defined benefit pension plan	-2,497***	855	4,591	6,140
Observations	3,218		637	
R^2	0.27		0.20	

(Continued)

Table 6.
Robustness check: Regression-estimated changes in retirement savings during 2009–2011 attributable to selected factors: IHS results, lower and higher earners, by age group (2011 dollars)—*Continued*

Determinant [a]	Lower earners [b]		Higher earners [c]	
	Coefficient	Standard error	Coefficient	Standard error
Age 50–61				
Incremental variables				
Years with earnings loss ≥ 10 percent (lifetime)	-398**	194	-842	861
Number of retirement asset types held in portfolio	1,946**	895	2,382	1,831
Employee's DC pension plan contribution rate [d]	686***	163	583	419
2009–2011 increase in employee DC pension plan contribution rate [d]	324*	180	602	521
Lifetime earnings ($10,000)	44*	24	35	26
Household income ratio (worker income as a percentage of household income) [d]	-37	23	-232**	96
Job tenure (years)	136*	72	-65	226
Retirement savings ($10,000)	-1,730***	149	-1,830***	133
Home equity ($10,000)	142*	76	373**	191
Categorical variables				
Respondent—				
Is white and a U.S. citizen	6,971***	1,585	11,976	7,831
Has associate's degree or higher	2,464**	1,275	9,800	7,769
Is female	-388	1,744	-10,723**	5,474
Has union job	-2,506	1,599	-12,218*	6,994
Self-reports fair or poor health; or having a mental or work limiting/preventing disability	-2,996*	1,609	-13,438	11,919
Observations	1,827		434	
R^2	0.20		0.11	

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTE: * = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. As of 2009, unless otherwise noted.

b. Data are OLS regression estimates for workers in the lowest 55 percent of the earnings distribution.

c. Data are IV regression estimates for workers in the highest 12 percent of the earnings distribution. Instruments for employer contribution include average employer contribution rates for a participant's state, industry, and education level; and the fraction of workers with nonzero employer contributions at the state and industry-education levels.

d. Percentage-point increments.

Discussion and Policy Implications

With DC pension plans, workers and employers contribute voluntarily to the worker's account. The worker then constructs an account portfolio, choosing among the investment vehicles the plan makes available. These plans work best for higher-earning workers with stable employment, health, and financial situations and are not as conducive to the saving needs of lower-earning workers, who may experience greater earnings volatility and job insecurity, lack financial literacy, have limited financial networks, and face liquidity constraints. The design of DC pension plans in the United States inadvertently makes lower earners more likely than higher earners to lose DC plan wealth.

Earnings volatility is associated with a decrease in DC plan wealth for lower earners but not for higher earners. Dushi, Iams, and Tamborini (2013) found that earnings volatility and nonemployment spells led workers to decrease their contributions and lowered their participation rates in the aftermath of the recession of 2007–2009. Our results suggest that nonemployment spells and years with major earnings losses have longer-lasting effects on workers' DC plan wealth and therefore on retirement savings overall. It may be that workers who suffer a substantial earnings

loss cannot maximize their portfolio performance by buying stock when the market is low because those are the times when they are more likely to lose earnings (Weller and Wenger 2009).

Workers who experience episodes of earnings decline may reasonably prefer liquidity to investing in what is perceived to be a less liquid retirement account. Declines in earnings may also instill fear in workers that they will be strapped for cash in the future, which further inhibits their willingness to tie up earnings in retirement savings vehicles (Ghilarducci, Saad-Lessler, and Reznik 2017). Regardless of the pathway, the permanent effect of past incidents of substantial earnings loss on DC plan wealth informs policymakers that career risks are faced by all workers, but most acutely by lower earners; and these risks work against lower earners' ability to save for retirement.

Our results indicate that a more diversified portfolio is associated with higher DC plan wealth for lower earners. This implies that lower-earning workers may benefit from more vigorous enforcement of regulations requiring employers to provide better investment choices or from prepackaged portfolios that are better-managed and cheaper than target-date funds (Skarbeck 2009; Grant 2014).

The finding that higher educational attainment is correlated with increases in retirement savings for all earners may indicate that formal education is a proxy for financial literacy, as it is assumed that financial literacy helps promote higher balances. However, that assumption is challenged by the finding that having a business degree had no effect on retirement savings.

Higher employer contributions to DC pension plans helped lower earners increase their DC plan wealth. This highlights the role of employers in helping lower earners save for retirement. However, U.S. employers are not required to contribute to their workers' DC accounts (or even to offer DC plans at all), putting lower earners at a particular disadvantage.

Although choosing the worker's DC plan contribution rate may be a family decision, the spouse's income seems to affect the decision for low earners only, not those at the top. A household's reliance on an individual worker's earnings is associated with retirement savings declines among lower earners but not higher earners. In Ghilarducci, Saad-Lessler, and Reznik (2017), we found some evidence that spouses may influence each other's DC plan contributions; but the effect was mostly complementary, not substitutable.

In sum, there seem to be three reasons why higher earners' retirement savings were more likely to have increased in our study period. First, lower earners had experienced more weeks of nonemployment during 2009–2011 and more years with earnings losses of 10 percent or more in their lifetime. Second, lower earners had less diversified retirement account portfolios: Higher earners had 2.0 asset types on average, compared with 1.5 for lower earners. Third, higher earners had higher DC plan employee and employer contribution rates in 2009 (6.11 percent and 2.86 percent, respectively) than lower earners had (2.80 percent and 2.15 percent, respectively).[19]

These findings show that the primary design features of DC pension plans—voluntary employee and employer contributions and individually directed investments—affect people differently based on their economic experiences. The effectiveness of DC pension plans depends on a worker's earnings level. We find stark differences in the resilience of retirement wealth accumulations between high earners and low earners. The results imply that the current design of DC plans disadvantages lower earners in their efforts to save for retirement.

Appendix A: Additional Notes on the Study Variables

Most of this study's variables are derived from data provided by the SIPP 2008 panel; the rest are derived from Social Security administrative records. The latter group consists of the earnings-related variables; specifically, employee's DC pension plan contribution rate, lifetime earnings, change in earnings during 2009–2011, volatility of annual earnings, and years with earnings loss of 10 percent or more.

Study variables that are not self-explanatory or are not fully described in the body of this article are listed below with relevant details noted.

DC pension plan contribution rate of employee. The amount contributed by an employee in a given year divided by the employee's earnings in that year; the result is then multiplied by 100 to express the value in percentage points.

DC pension plan contribution rate of employer. The employer's contribution is reported by the employee in the SIPP as either a rate or an amount. If the employee self-reported the employer's contribution amount, we divide that amount by the employee's self-reported annual earnings and multiply the result by 100 to express the value in percentage points.

Participates in a defined benefit (DB) pension plan. Respondent self-reports DB pension coverage at main job, expectation of receiving a DB pension benefits from a previous job, or receipt of DB pension benefits.

Ever received transfer payments. Wave 2 respondent self-reports ever receiving Aid to Families with Dependent Children, Supplemental Security Income, or Temporary Assistance for Needy Families (food stamps); followed up in wave 3.

Retirement savings. Balances reported by wave 4 and wave 10 respondents. Shown in current-year dollars.

Has a union job. Self-reported membership in a union or employee association or coverage by an agreement similar to a union contract at first reported job for current workers or at previous job for retirees.

Usually works 35 or more hours per week. Reported in wave 1. Refers to the period beginning with the first 6 consecutive months worked and ending with the current or last previous job.

Volatility of annual earnings. The standard deviation of lifetime annual earnings reported in administrative records.

Weeks not employed 2009–2011. The number of weeks between SIPP 2008 wave 3 and wave 11 in which the respondent did not work, including any periods out of the labor force.

Works at a large firm. A large firm has 100 or more employees at all of its locations combined, or at its single location, as applicable. "Firm" may refer to either the current or the previous employer, depending on whether the respondent is currently working.

Appendix B

Table B-1.
Regression-estimated changes in retirement savings during 2009–2011 attributable to selected factors: Results of using untransformed dependent variable, lower and higher earners (2011 dollars)

Determinant [a]	Lower earners [b]		Higher earners [c]	
	Coefficient	Standard error	Coefficient	Standard error
Retirement savings characteristics				
Incremental variables				
Retirement savings ($10,000)	-6,524***	176	-7,114***	380
DC pension plan contribution rate [d] of—				
Employee	1,683***	201	2,037*	1,171
Employer	322	211	13,379**	5,859
2009–2011 increase in DC pension plan contribution rate [d] of—				
Employee	562*	310	1,469	1,333
Employer	247	157	8,108	9,849
Number of retirement asset types held in portfolio	-178	473	6,208	3,979
Categorical variables				
Respondent—				
Participates in a defined benefit pension plan	-1,787	2,041	17,632	12,647
Has retirement investments involving some risk	227***	23	3,638	13,707
Ever received a lump-sum payment from—				
Own pension	2,605	2,801	5,480	13,893
Another person's pension	2,354	8,937	-12,098	67,284

(Continued)

Table B-1.
Regression-estimated changes in retirement savings during 2009–2011 attributable to selected factors: Results of using untransformed dependent variable, lower and higher earners (2011 dollars)—*Continued*

Determinant [a]	Lower earners [b]		Higher earners [c]	
	Coefficient	Standard error	Coefficient	Standard error
Sociodemographic characteristics				
Incremental variables				
Home equity ($10,000)	-1,628	5,867	1,228***	432
Number of divorces (lifetime)	-2,989	1,910	21,917**	11,275
Number of own children living with the family	-174	922	-2	4,453
Change in the number of children living with the family during 2009–2011	180	131	-866	13,249
Household income ratio (worker income as a percentage of household income) [d]	-1,817	1,950	-102	262
Categorical variables				
Respondent—				
Is married	-835**	350	-2,196	13,129
Is female	-3,649*	2,218	-4,333	11,411
Is white	-127***	31	25,548*	14,835
Is a U.S. citizen	10,829***	2,269	-11,008	20,583
Has associate's degree or higher	5,210***	1,031	30,889*	16,070
Has business degree	4,659**	1,929	18,350*	10,962
Self-reports fair or poor health; or having a mental or work-limiting or -preventing disability	-3,859	3,301	-25,085	28,660
Has ever received a transfer payment	-3,709	3,309	-15,695	33,119
Is aged 25–49	136	154	-454	967
Job/career characteristics				
Incremental variables				
Years with earnings loss ≥ 10 percent (lifetime)	2,455	2,025	373	1,992
Weeks not employed 2009–2011	15	75	-778	954
Lifetime earnings ($10,000)	1,912	2,345	134***	51
Job tenure (years)	645***	131	-394	637
Increase in earnings 2009–2011 ($10,000)	3,819*	2,312	-241	287
Volatility of annual earnings ($)	0***	0	0**	0
Categorical variables				
Respondent—				
Works at a large firm (100+ employees)	431	3,026	-14,859	12,792
Has union job	1,518	2,539	-38,685**	18,353
Usually works 35 or more hours per week	-3,496	2,311	13,221	14,214
Intercept	-4,280	8,866	13,621	52,795

SOURCE: Authors' calculations using SIPP 2008 panel data matched to Social Security administrative records.

NOTES: Number of observations = 9,231.

* = statistically significant at the 10% level; ** = statistically significant at the 5% level; *** = statistically significant at the 1% level.

a. As of 2009, unless otherwise noted.

b. Data are OLS regression estimates for workers in the lowest 55 percent of the earnings distribution.

c. Data are IV regression estimates for workers in the highest 12 percent of the earnings distribution. Instruments for employer contribution include average employer contribution rates for a participant's state, industry, and education level; and the fraction of workers with nonzero employer contributions at the state and industry-education levels.

d. Percentage-point increments.

Notes

[1] Although retirement savings may also include defined benefit pensions, annuities, savings accounts, and other vehicles, we use "retirement savings" to refer exclusively to combined balances in IRAs, Keogh plans, and DC plans.

[2] Other studies on retirement savings and preretirement household wealth (Smith, Johnson, and Muller 2004; Johnson, Mermin, and Uccello 2006; Dushi, Iams, and Tamborini 2013; Dushi and Iams 2015) rely on cross-sectional data, which are not as reliable as panel data for tracking financial behavior and outcomes over time.

[3] However, lower earners are likely to have less diversified and lower-risk portfolios than higher earners (Kuhnen and Miu 2015).

[4] We assume that there are no significant changes in pension plan design features between two contiguous waves because the waves are 4 months apart.

[5] Specifically, the SIPP questioner (a Census Bureau field representative) states: "The next part of the interview is about your income since [first reference month] 1st. We want to be as accurate and efficient as we can, so it would be very helpful if you could refer to any records you might have." In addition, if a respondent says, "hold on while I get my records," then the SIPP questioner is instructed to let them do so.

[6] Data for 1980 and earlier are restricted to earnings in covered employment up to the Social Security taxable maximum.

[7] Employer contribution rates are reported in the SIPP data for 2009 and 2011. The employer contribution rate in 2010 is interpolated as the average between the 2009 and 2011 rates. The employer contribution rates are applied to the respondent's self-reported earnings for each month between 2009 and 2011 to yield annual employer contribution amounts for 2009, 2010, and 2011.

[8] The Social Security benefit formula uses the average indexed earnings from a worker's 35 highest-earning years. The unadjusted calculation for an eligible worker who claimed retirement benefits in 2009 was equal to 90 percent of the average indexed earnings up to the first bend point of $8,928 per year, plus 32 percent of average indexed earnings between $8,929 and the second bend point of $53,796 per year, and 15 percent of average indexed earnings between $53,797 and the taxable earnings cap of $106,800. The formula yields a progressive benefit structure. For a low-earning worker, Social Security replaces about 80 percent of final earnings; for a middle-earning worker, it replaces about 40 percent; and for a higher earner, it replaces about 25 percent.

[9] Those observations are not dropped from the sample, however, because there is no reason to believe that the rest of the responses are unreliable. We do not include indicators of withdrawals or rollovers in the regression equation only because there are too few observations to develop a reliable estimate of their effect on DC plan wealth.

[10] Differences in initial levels of wealth across groups may lead to varying saving behaviors, as well as a divergence in investment gains—changes in levels of wealth—across the groups.

[11] Investments considered safe are certificates of deposit or other saving certificates, money market funds, U.S. government securities, and U.S. savings bonds. Investments involving some risk are municipal or corporate bonds, stocks or mutual fund shares, and other assets.

[12] Indicated by whether the respondent has an associate's degree or a diploma/certificate from a vocational, technical, trade, or business school beyond the high school level in business/office management; or a bachelor's, master's, professional, or doctoral degree in business/management; as of 2009.

[13] Ninety-three percent of respondents with non-employment spells during 2009–2011 did not report being unemployed.

[14] To put these numbers in perspective, less than 5 percent of workers in the sample had never experienced a year with a significant earnings loss, while 61 percent of the sample experienced four or more such episodes. Although we do not identify why workers experienced earnings losses, voluntary workforce withdrawal or reductions in work hours to provide unpaid care for family members may be one reason.

[15] Decomposition effects could be negative when the change in wealth was negative but contributions were present. This means the factor's effect ran counter to the total effect on wealth. The decomposition effects have to sum to 100 percent of the loss for those who lost DC wealth. Because contributions reduce losses, the ratios of contributions to total loss are negative numbers (−160 percent and −86 percent). This is why the ratios of portfolio effects to total loss exceed 100 percent (373 percent and 221 percent).

[16] Appendix Table B-1 presents, for comparative purposes, an alternative version of Table 5 that uses an untransformed dependent variable and includes all determinants regardless of statistical significance.

[17] The discussion in the remainder of this section follows the structure of this paragraph in that we cite average values from Table 2, by which we multiply each regression estimate we mention from Table 5. For brevity, we omit repeated references to Table 2 as the source of the average values.

[18] Our sample includes many workers who invest in more than one asset type but our data do not specify the amounts invested in each type, preventing full measurement of asset allocation. To adjust, we examined workers who indicated only one asset type and compared their allocation choices. We found that white citizens were much more likely to invest in riskier investment types than were nonwhites or noncitizens. Because we lack specific asset-allocation input data and white-citizen investment choices differed sharply from those of other respondents, the estimates for white respondents in Table 5 are likely a proxy for the unobservable asset-allocation differences by race and citizenship status.

[19] Additionally, higher earners receive a higher net-of-tax return on every dollar invested in a DC plan because they receive a higher implicit subsidy via state and federal tax deductions for retirement contributions. A person in the highest tax bracket returns 39.6 cents from the federal deduction for retirement contributions and, on average, 7 cents from a state deduction. If the higher earner also pays lower fees because of scale economies and has better-structured portfolios because of better advice and less risk adversity, then the higher earner's rate of return increases continuously and the accumulated wealth increasingly pulls away from that of a lower earner. This topic merits future research.

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Three-Year Effects of the Youth Transition Demonstration Projects

by Thomas M. Fraker, Joyanne Cobb, Jeffrey Hemmeter, Richard G. Luecking, and Arif Mamun*

This article examines the effects of the Youth Transition Demonstration (YTD), a Social Security Administration initiative to provide employment services and enhanced work incentives to disability-program beneficiaries aged 14–25. YTD was evaluated during 2005–2014 using a randomized controlled trial research design. Follow-up surveys of and administrative data on 5,103 individuals in six project sites were used to estimate the effects of the YTD projects 1 year and 3 years after youths enrolled in the study. The analysis found statistically significant positive impacts of approximately 7 percentage points on employment rates in three sites during the third postenrollment year.

Introduction

For youths with disabilities, the transition to adulthood can be especially difficult. Besides the host of issues facing all individuals at that age, young people with disabilities have additional challenges related to health, social isolation, service needs, the potential loss of program benefits, and lack of access to supports (Osgood, Foster, and Courtney 2010). These challenges complicate their planning, often leading to poor education and employment outcomes, dependence on public programs, and a possible lifetime of poverty (Davies, Rupp, and Wittenburg 2009).

The cost of providing disability benefits to young people is high. The Supplemental Security Income (SSI) and Disability Insurance (DI) programs, both administered by the Social Security Administration (SSA), are the primary federal programs that provide cash assistance to children and adults with disabilities. In December 2016, 1,095,000 individuals aged 13–25 received SSI payments with an annualized value of $8.4 billion (SSA 2017b, Table 35). In the same month, 178,000 individuals aged 25 or younger received DI benefits with an annualized value of $1.4 billion (SSA 2018, Tables 5.A1.2 and 5.A1.4).

Findings from earlier demonstration projects document the importance of customized supports and early interventions that meet the specific needs of youths with disabilities. Of particular note is the Transitional Employment Training Demonstration (TETD). Funded by SSA, TETD provided employment supports to SSI recipients in 13 communities; the recipients ranged in age from 18 to 40 and had intellectual disabilities. TETD operations began in June 1985; participants were enrolled through 1986 and services were

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Selected Abbreviations

DI	Disability Insurance
ETO	Efforts to Outcomes
IRS	Internal Revenue Service
NASET	National Alliance for Secondary Education and Transition
RCT	randomized controlled trial

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provided through June 1987. Decker and Thornton (1995) found that TETD increased participants' cumulative earnings by 72 percent over the 6 years following their entry into the demonstration. Moreover, sites that delivered customized supports had better results than sites that provided uniform supports to all participants. Ivry and Doolittle (2003) found that mixed results from studies of other demonstration projects for youths with disabilities could be explained largely by the underenrollment of key subgroups of young people, inconsistent participation among enrollees, and high attrition rates. Their findings, as with those for TETD, underscore the importance of customizing employment supports to reflect the needs of specific youths rather than providing uniform supports.

Several more recent studies have pointed to additional factors that improve employment outcomes for youths with disabilities. Growing evidence indicates that work experience during the secondary-school years is a key predictor of postschool employment success (Luecking and Fabian 2000; Fabian 2007; Test and others 2009). Further, expectations and support from youths' families are linked to positive employment outcomes (Carter, Austin, and Trainor 2012; Simonsen and Neubert 2013), as is the provision of services designed to enhance youth self-determination (Wehmeyer, Field, and Thoma 2012). Summarizing findings from 22 studies, Test and others (2009) identified exposure to at least some general-education classes and participation in vocational education as effective strategies for improving postschool employment outcomes for youths with disabilities.

Youths receiving SSI face the same challenges that other youths with disabilities face, compounded by low income.[1] Recognizing the importance of helping young people with disabilities to achieve their full economic potential, SSA developed the Youth Transition Demonstration (YTD) (Fraker and Rangarajan 2009). Focusing on youths aged 14–25 who were either receiving SSI payments or DI benefits or were at high risk of receiving them in the future, SSA and its contractors developed, implemented, and evaluated strategies to promote self-sufficiency. YTD projects in multiple sites around the country offered services designed to assist young SSI recipients and DI beneficiaries facing the transition to adulthood.[2] SSA also provided waivers from certain restrictions on disability-program work incentives for YTD participants (Table 1). These waivers enhanced the existing incentives, for example by increasing the proportion of earnings that could be excluded from SSI countable income and delaying the loss of payments or benefits associated with negative disability redeterminations (SSA 2008).

The findings reported in this article address two research questions:

- Did the YTD projects provide participants with substantial levels of services, especially of services designed to promote employment?

- Did the YTD projects improve employment and other transition outcomes for participants in the third year after their enrollment in the evaluation,[3] relative to what they would have experienced in the absence of the projects?

To answer these questions, this article summarizes a series of reports prepared for SSA by its YTD evaluation contractor, Mathematica Policy Research.[4] The first question is addressed by analyzing project implementation and participant outcomes in the first year after enrollment in the evaluation. The second question is addressed through analysis of outcomes in the third year after enrollment.

The YTD Program Model

The YTD program model was based on existing research on effective approaches to promoting successful transitions to adulthood for youths with disabilities (Rangarajan and others 2009). In addition to the research cited earlier, two studies contributed promising insights; both centered on thorough reviews of existing research on the needs of youths in transition from secondary education to adulthood. The first was conducted by the National Alliance for Secondary Education and Transition (NASET) with input from more than 30 national advocacy groups, professional organizations, and education associations. The NASET study produced a set of standards, quality indicators, and research-based benchmarks for identifying critical needs for all youths, including those with disabilities (NASET 2005).

Building on the NASET framework, the National Collaborative on Workforce and Disability for Youth conducted its own review of research, demonstration projects, and recognized effective practices. From

Table 1.
SSA disability program work incentives and the effects of YTD waivers

Work incentive	Description	Rule change under YTD waiver
SSI		
Student Earned Income Exclusion (SEIE)	Enabled SSI recipients who were students to exclude a certain amount of earnings from countable income and thus avoid reductions in SSI payments. In 2009 and 2010 SSA excluded the first $1,640 of a student's earnings each month, to a maximum of $6,600 in a year. SEIE eligibility ended when a recipient attained age 22.	Age limit was waived for YTD participants for as long as they attended school regularly.
General Earned Income Exclusion (GEIE)	Enabled most SSI recipients to exclude from countable income the first $65 of earnings plus one-half of additional earnings.	YTD participants could exclude from countable income the first $65 of earnings plus three-quarters of additional earnings.
Plan to Achieve Self-Support (PASS)	Enabled SSI recipients to exclude from countable income and resources amounts paid for certain expenses, such as the cost of owning a car, pursuing an education, and purchasing assistive technology, to achieve a specific SSA-approved work goal.	YTD participants could also use a PASS to explore career options or pursue additional education.
Individual Development Account (IDA)	Provided a trust-like account for SSI recipients to save for a specific goal, such as purchasing a home, going to school, or starting a business. SSA matched earnings deposited in an IDA, often at $2 for every $1 deposited by the participant. The money accumulated in an IDA was excluded when determining SSI eligibility, and the earnings deposited during a month were excluded when determining the SSI payment amount.	A YTD participant could also use an IDA to save for other approved goals.
SSI and DI		
Continuing Disability Reviews and Age-18 Redeterminations (Section 301)	Benefits based on disability could continue despite a negative Continuing Disability Review or age-18 medical redetermination if: • the beneficiary was participating in any of certain programs; and • SSA determined that continued participation would increase the likelihood that the individual would remain off the disability rolls permanently once benefits stopped. These "likelihood" determinations normally had to be made on a case-by-case basis.	If SSA determined that medical disability had stopped and the participant was no longer eligible for assistance, he or she could continue to receive both cash benefits and health care services while participating in YTD.

SOURCES: SSA (2017a) and "YTD Modified SSI Program Rules (Waivers) Descriptions" (https://www.ssa.gov/disabilityresearch /ytdmodifiedssi.html).

this review, it developed its *Guideposts for Success* (National Collaborative on Workforce and Disability for Youth 2005, 2009) to help practitioners and policymakers optimize service delivery for youths with disabilities. The guideposts involve providing school-based preparatory experiences, career-preparation and work-based experiences, youth development and leadership training, connections to programs and services, and encouragement of family involvement and support.

The YTD program model (Chart 1) included many of the components identified in *Guideposts,* although the YTD project customized the components to meet the particular needs of its target population (Luecking

and Wittenburg 2009). First and foremost among those components was to provide participating youths with individualized work-based experiences and supports. The experiences included worksite tours; volunteer work; subsidized jobs; and, most notably, competitive paid employment in integrated settings, where people with disabilities work alongside nondisabled individuals. Another key component was to promote self-sufficiency by enabling participants to acquire the skills and knowledge needed to chart their own courses and advocate for themselves. This involved engaging youths in extensive planning that focused on education, employment, health care, and independent

Chart 1.
YTD program model

YTD intervention components
- Provide individualized work-based experiences and supports
- Teach self-sufficiency skills
- Include and involve family members
- Alert client to social and health services and service linkages
- Provide SSA disability program benefits counseling and program waivers to encourage work

Factors affecting transition

General
- Youth's interests and strengths
- Economic climate

Resources
- Schools, special education, higher education, and specialized training
- Vocational rehabilitation, Ticket to Work, and Workforce Investment Act programs
- Mental health, intellectual disability, and developmental disability systems
- SSA disability programs
- Health care delivery and financing systems
- Community-based service providers
- Employers

Transition Efforts by Youth

Barriers
- Low expectations about work and self-sufficiency
- Lack of access to employment services and work-based experiences
- Uncoordinated handoff to adult services
- Inadequate access to social and health services
- Financial disincentives to work
- Incomplete knowledge of how work affects benefits

Key outcomes

Short term
- Preparation for employment
- Paid employment
- Substantial income from earnings and benefits
- Positive attitudes and expectations
- Further education

Longer term
- Paid employment
- Substantial income from earnings
- Self-determination
- Pursuit of educational, training, and work opportunities
- Reduced contact with the justice system

SOURCE: Adapted from Rangarajan and others (2009).

living. A third component—to encourage family involvement—included training, networking, and providing transition-related information to parents and other relatives. YTD also sought to link youths and their families with providers of social and health services and other potential supports. The final component of the model was counseling on SSA disability program benefits—and on the special waivers of restrictions on certain work incentives.

Another noteworthy feature of YTD was the provision of extensive programmatic technical assistance to project staff. TransCen, Inc., a nonprofit organization with expertise in designing and implementing employment programs for youths with disabilities, delivered the technical assistance via site visits, remote webinars and teleconferences, and annual meeting attendance. The technical assistance was primarily focused on helping front-line project staff conduct job development with employers and match participants with appropriate jobs. TransCen also assisted project managers in monitoring job development efforts and outcomes.

The YTD Project Sites

YTD projects were established and entered into the randomized controlled trial (RCT) evaluation in two distinct phases. SSA signed cooperative agreements with seven organizations in September 2003 to operate YTD projects in six states. Two years later, SSA selected a team of researchers and transition program specialists headed by Mathematica to assist the agency in refining the program model, provide technical assistance to the projects on model implementation, and conduct the RCT evaluation. Members of the Mathematica team visited each of the projects to observe the delivery of services and to interview staff. Based on an assessment of the quality of services and the willingness of staff to modify their interventions to include all components of the YTD program model, the Mathematica team recommended that two projects in New York (one in Bronx County and the other in Erie County) and one in Colorado participate in the first phase of the evaluation. SSA accepted the team's recommendations, and youths began to enroll in the evaluation in Colorado and Bronx County in August 2006 and in Erie County in February 2007. Services concluded in fall 2009 in Colorado and Erie County and in spring 2010 in Bronx County.

Three additional projects entered the evaluation in phase 2. Following the recommendations of the Mathematica team, SSA selected the projects from a group of five that were funded through the evaluation contract to deliver services on a pilot basis in 2007. The selection criteria included the number of youths recruited during the pilot year, the strength of services delivered, the degree of fidelity to the YTD program model, the quantity and quality of alternative services available in the project vicinity, and the size of the target population. The projects selected for full implementation in phase 2 were located in Miami-Dade County, Florida; Montgomery County, Maryland; and 19 counties in West Virginia. (Unlike New York's two distinct project sites, West Virginia was home to a single project with multiple field locations. In that respect, it was similar to the Colorado project, which operated in four counties.) Youths in each of the phase 2 sites began to enroll in the evaluation in March 2008, and SSA-funded YTD services ended in March 2012.

Table 2 lists the RCT project sites, arranged by phase and state, along with their lead organizations and target populations. Detailed descriptions of the six YTD projects that participated in the RCT evaluation appear in Martinez and others (2008).

The phase 1 projects entered the evaluation and began delivering services before TransCen was fully integrated into its role as the provider of programmatic technical assistance. Given that the phase 1 projects had independently developed their program models, they were only able to partially incorporate TransCen's technical assistance. By contrast, the phase 2 projects collaborated with TransCen in developing their program models and fully incorporated the technical assistance in delivering services. That assistance was thorough and consistent over the course of the evaluation. It focused on employment and provided guidance in assessing participants' strengths and challenges, engaging employers, placing youths in jobs, and delivering postemployment supports. Technical assistance also provided the projects with quantitative tools to use in conjunction with their case management information systems for monitoring participants' readiness for employment and their employment outcomes.

Enrolling Youths in the Evaluation

Five of the six sites (all except Maryland) restricted enrollment in the evaluation to youths who were SSI or DI beneficiaries; the Bronx County project further restricted enrollment to SSI recipients only. Interviewers at Mathematica contacted youths on the disability rolls via letter and telephone to describe the study and to enroll those who expressed interest. A young person enrolled by completing a baseline telephone survey and

Table 2.
YTD evaluation project sites

State, location(s), and name	Lead organization	Target population	Total	Control group assignees	Assignees	Participants	Participation rate (%)
					Treatment group		
					Evaluation enrollees		
All sites	. . .	. . .	5,103	2,347	2,756	2,318	84.1
Phase 1 projects							
Colorado							
Boulder, El Paso, Larimer, and Pueblo Counties: **Colorado Youth WINS**	Colorado WIN Partners of the University of Colorado Health Sciences Center	SSI and DI beneficiaries aged 14–25	855	387	468	401	85.7
New York							
Bronx County: **CUNY Youth Transition Demonstration Project**	The City University of New York's John F. Kennedy, Jr. Institute for Worker Education	SSI recipients aged 15–19 and their families	889	397	492	387	78.7
Erie County: **Transition WORKS**	Erie 1 Board of Cooperative Educational Services	SSI and DI beneficiaries aged 16–25	843	384	459	380	82.8
Phase 2 projects							
Florida							
Miami-Dade County: **Broadened Horizons, Brighter Futures (BHBF)**	ServiceSource (formerly Abilities, Inc.)	SSI and DI beneficiaries aged 16–22	859	399	460	388	84.3
Maryland							
Montgomery County: **Career Transition Program (CTP)**	St. Luke's House, Inc.	High school juniors or seniors with severe emotional disturbances	805	383	422	374	88.6
West Virginia							
19 counties: **West Virginia Youth Works**	Human Resource Development Foundation, Inc.	SSI and DI beneficiaries aged 15–25	852	397	455	388	85.3

SOURCES: Mathematica Policy Research and project management information systems.

NOTE: . . . = not applicable.

sending Mathematica a signed consent form affirming the enrollment decision. A youth without a legal guardian (generally, one aged 18 or older) could sign the consent form; otherwise, a legal guardian's signature was required. After a young person enrolled, Mathematica used a computer algorithm to randomly assign the youth to either the site's treatment group or its control group. Table 2 provides counts of evaluation enrollees and their treatment or control group status, by site.

In Maryland, eligibility was restricted to youths who were in—or had recently dropped out during—their last 2 years of high school and were considered by the county public school or mental health system to have a severe emotional disturbance or other significant mental illness. They were thus at high risk of receiving SSI payments as young adults. For youths who met these criteria, the Maryland YTD project staff conducted the initial outreach, primarily through presentations to students in high school transition classes and in transition-service information sessions held at the schools for parents and families. Interviewers at Mathematica then followed up with youths who had registered their interest and asked them to complete the baseline survey and provide written consent, after which the youths were randomly assigned to either the site's treatment group or its control group.

On average, 850 youths per site enrolled in the evaluation, for a total of 5,103 enrollees. By design, Mathematica randomly assigned slightly more than half (54 percent) of the enrollees to a treatment group. In the second stage of recruitment, project staff reached out to the treatment-group assignees and extended formal offers to participate in the YTD projects and receive the services that they were providing as well as the waivers from certain SSA work incentive restrictions. Table 2 provides counts of the treatment-group youths who signed the consent forms for this stage (or whose legal guardians signed for them) and were classified as YTD participants. Overall, 84 percent of treatment-group assignees became YTD participants.

Participants differed significantly from nonparticipants (that is, treatment group assignees who did not sign the second-stage consent forms) in several characteristics measured in the baseline survey (not shown). In at least half of the evaluation sites, participants had higher average family incomes, their mothers were more likely to have graduated from high school, they were more likely to have participated in job training, and a higher proportion of them expected to work for pay in the future. These are characteristics that one would expect to be positively associated with

successful transition outcomes. However, following the standard approach in RCT evaluations for estimating effects on individuals targeted by the interventions, all treatment-group members, regardless of their participation status, were included in the YTD outcome analysis. This means that the participant-nonparticipant differences at baseline could not be a source of bias in the estimated intent-to-treat (ITT) effects of the YTD projects on postenrollment outcomes.[5]

Enrollee Characteristics

Table 3 presents the baseline characteristics of youths who enrolled in the evaluation at each of the six project sites. The characteristics of enrollees varied from site to site, with the Maryland and Bronx County projects exhibiting several important differences from the other four locations. Maryland was the only site in which the YTD project did not exclusively target youths who were SSI or DI beneficiaries. Only 21 percent of the enrollees there were receiving disability benefits when they entered the evaluation, compared with 100 percent in the other sites. The small share of beneficiaries among Maryland enrollees may help explain why comparatively high proportions of them had worked for pay in the previous year (57 percent, versus 37 percent or lower in the other sites) and reported being in excellent health (28 percent, versus 22 percent or lower in the other sites). Because the Maryland site targeted high school students and recent school leavers, the average age of its enrollees was younger (17.7) than that of enrollees in most of the other sites (around 19 or 20). The YTD project in Bronx County also targeted students; as a result, evaluation enrollees there were younger (average age 16.2) and more likely to be in school (94 percent) than their counterparts in the other sites. Bronx County enrollees also had somewhat lower socioeconomic status than enrollees in the other sites: only 18 percent were living with both parents when they enrolled in the evaluation (compared with 29 percent or higher in the other sites), and fewer than half of their mothers had graduated from high school (compared with about two-thirds or more in the other sites).

For some baseline characteristics, the similarities among evaluation enrollees across the sites are more notable than the differences. For example, at least 57 percent of enrolled youths were males, reflecting the preponderance of males among young disability beneficiaries nationwide; in December 2016, 67 percent of SSI recipients younger than 18 were male (SSA 2017b, Table 19). In all sites, the proportion of

Table 3.
Baseline characteristics of youths enrolled in the YTD evaluation, by site

	Phase 1 projects			Phase 2 projects		
		New York				
		Bronx	Erie			West
Characteristic	Colorado	County	County	Florida	Maryland	Virginia
Enrollees	855	889	843	859	805	852
Average age (years)	19.9	16.2	19.9	19.1	17.7	20.5
Percentage distributions						
Sex						
Male	57.1	67.8	61.7	59.6	67.1	57.7
Female	42.9	32.2	38.3	40.4	32.9	42.3
Race						
White	71.7	32.5	55.4	36.1	40.2	80.4
Black	8.9	42.3	35.3	51.6	39.9	8.9
Other or unknown	19.3	25.1	9.3	12.2	19.9	10.7
Living arrangement						
In two-parent family	45.2	18.2	32.3	28.7	45.2	44.7
In single-parent family	35.1	80.1	49.7	63.0	41.3	35.1
Lives alone or with friends	14.6	0.9	12.7	4.6	6.0	18.9
Group home or institution	5.0	0.8	5.3	3.7	7.5	1.3
Self-reported health status						
Excellent	20.0	21.1	18.7	21.9	27.6	14.8
Very good or good	56.2	61.2	61.6	55.7	61.0	56.4
Fair or poor	23.9	17.8	19.7	22.4	11.4	38.8
Primary disabling condition of SSI or DI beneficiary						
Mental illness	17.5	12.6	17.7	16.6	50.0	24.2
Cognitive or developmental disability	43.3	32.4	44.1	43.0	24.5	41.0
Learning disability or attention deficit disorder	7.0	24.4	13.3	21.1	16.4	13.9
Physical disability	23.9	18.1	18.8	14.3	3.6	16.6
Speech, hearing, or visual impairment	8.2	12.5	6.1	5.0	5.5	4.3
Percentages						
Hispanic origin	24.6	69.8	9.0	42.3	23.2	2.7
Attends school	47.8	93.6	51.7	56.4	77.0	36.7
Worked for pay in previous year	37.4	18.3	35.3	18.5	56.5	28.8
Expects to live independently in the next 5 years	71.2	72.2	76.0	68.4	80.4	72.6
Expects to work at least part-time for pay in the next 5 years	88.7	95.4	92.6	90.3	98.2	77.6
Mother is high school graduate	79.2	46.5	73.6	65.3	79.4	67.0
SSI or DI beneficiary	100.0	100.0	100.0	100.0	21.1	100.0

SOURCES: YTD baseline survey and SSA program records.

NOTE: Rounded components of percentage distributions do not necessarily sum to 100.0.

enrollees with physical primary disabling conditions was relatively low (24 percent in Colorado and 19 percent or lower in the other sites), as was the proportion with speech, hearing, or visual impairments (less than 13 percent in all sites). In addition, large shares of enrollees in all sites reported at baseline that, in the next 5 years, they expected to live independently (68 percent or higher), while even larger shares expected to work for pay (78 percent in West Virginia and 89 percent or higher in the other sites).

As noted earlier, youths who enrolled in the evaluation were first randomly assigned to either a treatment group or a control group. Those in the treatment group were given the opportunity to receive both the YTD waivers and specialized services, whereas those in the control group followed standard DI and SSI work-incentive restrictions and had access only to the non-YTD services already available in their communities. Because of random assignment, the two groups were expected to be statistically similar at the beginning

of the study, so that any differences in postenrollment outcomes could be attributed to YTD. Consistent with this expectation, the treatment and control groups in each site did have statistically equivalent baseline characteristics. We conducted chi-square tests and *t*-tests for treatment-control differences in approximately 50 baseline characteristics per site. The number of statistically significant differences (those with *p* values less than 0.10) ranged from four to seven per site, as would be expected on the basis of random chance (Fraker and others 2014b).

All youths who enrolled in the evaluation were included in the analysis of YTD effects in the first and third years after their enrollment, contingent on the availability of follow-up data. The analysis thus included even the treatment-group assignees who did not ultimately participate in the YTD project services. We analyzed the projects' effects on all evaluation enrollees to preserve the integrity of the RCT design, thereby ensuring that any baseline differences between the treatment and control groups were attributable to chance.

Data Sources and Target Samples

The YTD evaluation included analyses of both the implementation of the individual projects and their effects on youth employment (and other outcomes) in the first and third years after enrollment. The implementation analysis and the outcome analysis differed in their data sources and target samples, as described below.

For quantitative data on the delivery of services to YTD participants, the implementation analysis relied on Efforts to Outcomes (ETO), a proprietary web-based management information system used at all of the sites. Project staff entered into ETO each service provided to YTD participants and the amount of time associated with its delivery. The ETO data pertained to treatment-group members only and, more precisely, to the 84 percent of treatment-group members who agreed to participate in the YTD projects. To supplement the ETO data, the Mathematica evaluation team collected data on project implementation during three visits to each site. The visits involved observations of project operations, interviews with project staff, and focus-group discussions with participating youths and their parents.

The analysis of outcomes in the first and third years after enrollment in the evaluation was based on data from SSA and Internal Revenue Service (IRS)

administrative files and from two follow-up surveys of enrollees conducted by Mathematica. A distinguishing feature of these data is that they were available for control-group members as well as treatment-group members. The administrative data included monthly disability benefit amounts and annual earnings from employment.[6] The survey data included information on service receipt, employment and earnings, educational progress, contact with the justice system, and other outcomes.

Implementation Analysis Measures

The ETO data and the Mathematica team's site visits yielded information on a broad range of measures of project implementation. This article presents findings from an analysis of ETO-based measures of services received by treatment-group youths during the first 12 to 15 months after they agreed to participate in the YTD projects. The measures pertain to (a) whether a youth received YTD services and (b) the number of hours of service received. Those two measures were applied first to services of any type and secondly to employment-promoting services in particular. The employment services included but were not limited to career exploration, soft-skills training, job-search assistance, development of work experiences, job placement, and postemployment follow-up including job coaching. Data for these measures were reported by project staff via ETO, rather than by participants themselves in the follow-up surveys.

Outcome Analysis Measures

Data from SSA and IRS administrative files were available for the evaluation enrollees who did not die between the date of enrollment and the end-dates for the two analysis periods. However, in the three phase 2 sites (Florida, Maryland, and West Virginia), IRS records were not available at the time of the analysis for youths who had entered the evaluation in the final year of enrollment (2010). Thus, for year-3 outcome measures that are based on IRS data, the sample sizes for the phase 2 sites represent between 58 percent and 83 percent of the surviving evaluation enrollees (Table 4).

Most but not all enrollees responded to the YTD follow-up surveys. Mathematica attempted follow-up interviews with all surviving enrollees, including control-group members as well as the members of the treatment groups who did not participate in project services; however, 13.3 percent of the enrollees did

Table 4.
YTD evaluation sample sizes, by site, follow-up interval, and data source

| | | | Phase 1 projects | | Phase 2 projects | | |
| | | | New York | | | | |
Sample and source	All sites	Colorado	Bronx County	Erie County	Florida	Maryland	West Virginia
			Baseline survey				
Enrollees/respondents	5,103	855	889	843	859	805	852
			Year 1 analysis				
Surviving enrollees	5,072	850	885	837	850	801	849
Follow-up survey respondents	4,395	750	789	746	738	639	733
As a percentage of surviving enrollees	86.7	88.2	89.2	89.1	86.8	79.8	86.3
			Year 3 analysis				
Surviving enrollees	5,033	842	884	827	840	798	842
Follow-up survey respondents	4,141	727	740	718	685	595	676
As a percentage of surviving enrollees	82.3	86.3	83.7	86.8	81.5	74.6	80.3
Administrative data from—							
SSA (for disability benefits)	5,033	842	884	827	840	798	842
As a percentage of surviving enrollees	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IRS (for employment and earnings)	4,208	842	884	827	695	478	492
As a percentage of surviving enrollees	83.6	100.0	100.0	100.0	82.7	59.9	58.4

SOURCE: Mathematica Policy Research.

not respond to the 1-year follow-up survey (because they could not be located or declined to respond) and 17.7 percent did not respond to the 3-year follow-up survey. Consequently, the sample sizes for outcomes measured using survey data are smaller than the counts of the surviving evaluation enrollees.

The measures for the outcome analysis are discussed below. For each measure, we identify the data source as being either the SSA or IRS administrative files or the YTD follow-up surveys. Fraker and others (2014b) present sample sizes, mean values, and standard deviations for these measures by site and for treatment and control groups.

Receipt of Employment Services (Year 1)

Through individualized employment services, the YTD projects aimed to improve youth employability and employment outcomes. The measure of employment services for the outcome analysis is whether a youth received any of the following during the period from enrollment to the 1-year follow-up survey: career counseling, résumé preparation support, job-search assistance, job shadowing and apprenticeship, SSI and DI benefits and work incentives counseling, and other employment services. The measure differs in several

respects from the measure of the receipt of employment services for the implementation analysis. First, it is based on youth reports in the 1-year follow-up survey of services received rather than on service data recorded by project staff in ETO. Second, the measure does not restrict the services to those provided by the YTD projects. Third, the measure was obtained for both treatment- and control-group members; hence, it can be included in the outcome analysis.

Hours of Services of Any Type (Year 1)

Treatment- and control-group members who responded to the 1-year follow-up survey identified the providers from whom they received various services in the year after they enrolled in the evaluation. For each provider, they reported the starting and ending dates of service, the frequency of service visits, and the typical length of a visit. From this information, we calculated the hours of services received from each provider and the total hours of services of any type from all providers.

Paid Employment (Years 1 and 3)

The YTD projects sought to help youths find paid employment in the short term and, by combining those experiences with other YTD services and the

associated program waivers, to improve their paid-employment outcomes in the longer term. The evaluation's surveys provided measures of paid employment at any time between enrollment in the study and the 1-year follow-up and at any time during the year preceding the 3-year follow-up. IRS administrative files provided a measure of paid employment in the third calendar year following enrollment in the evaluation. The findings reported here treat paid employment in the year following enrollment as a service measure rather than as an outcome measure, as assistance in obtaining paid employment was a core component of the YTD program model. By contrast, paid employment in the third year following enrollment is treated as an outcome measure because YTD services typically lasted for only 12 to 18 months.

Earnings from Employment (Year 3)

The outcome analysis drew on two data sources for measures of annual earnings from employment. First, a survey-based measure captured earnings during the year preceding the 3-year follow-up survey reported by the enrolled youth. Youths reported jobs held, usual hours worked, and wage rates. Second, IRS files provided a measure of earnings during the third calendar year following enrollment in the evaluation. In principle, the survey-based measure should be more comprehensive than the IRS-based measure because it includes earnings from informal jobs for which employers did not report employee earnings to the IRS. On the other hand, the survey-based measure is subject to respondent recall error, whereas the IRS-based measure is not.

Disability Benefit Amount (Year 3)

Even though SSA expected that the YTD projects would reduce dependency on disability benefits in the long term, it had no expectation that the projects would achieve that objective during the YTD evaluation's 3-year follow-up period. The YTD waivers enabled youths receiving YTD services to (a) retain more of their benefits if they were working and (b) delay the effectuation of negative disability redeterminations. The waivers remained in effect for a YTD participant for 4 years after enrollment in the evaluation or until the youth reached age 22, whichever came later (SSA 2008). Because of the waivers, the YTD projects likely would increase the amount of benefits received by treatment-group youths during the evaluation's limited follow-up period. The outcome of interest is the total amount of SSI and DI benefits (as recorded in SSA

program files) received in the third year following enrollment in the evaluation—in other words, the total amount of benefits received in months 25 through 36, where month 1 is the enrollment month.

Total Income (Year 3)

The YTD initiative was expected to improve youths' income by increasing their earnings from employment and providing them with waivers that allowed them to retain more of their benefits than would otherwise have been possible as their earnings increased. Thus, one of the important outcome measures to be analyzed was the total income received by youths from earnings and disability benefits in the third year following enrollment. This measure is the sum of yearly earnings as reported in the 3-year follow-up survey and total benefits received in the third year following enrollment as recorded in SSA program files.

Contact with the Justice System (Year 3)

None of the YTD project sites provided services specifically designed to reduce youth contact with the justice system. Nevertheless, by counseling participants (and, in some cases, their parents), engaging them in positive activities, assisting them with staying in school, and increasing their incomes, the projects might have reduced the likelihood of justice-system contact. In the outcome analysis, the measure of such contact was whether a youth reported an arrest or a charge of delinquency or criminal activity in the year preceding the 3-year follow-up survey.

Analytical Methods

When well-executed, random assignment ensures that comparing mean values of outcomes between treatment and control cases yields unbiased estimates of intervention effects. However, we used multivariate statistical models to improve the precision of our estimates. These models also allowed us to control for chance differences in baseline characteristics between treatment- and control-group members that could be correlated with outcome measures. We used ordinary least squares regression models to analyze continuous outcome measures and logistic regressions for binary outcomes. (Hereafter, we may use the term "regression models" to refer to models of both types.) The independent variables in the regression models were measures of age, race, sex, education, health, employment, expectations, family resources, and disability benefits from the evaluation's baseline survey or SSA files. The

models also included an independent variable indicating whether a youth had been assigned to a control group or a treatment group. The regression coefficient on this independent variable is the estimated effect of the YTD project on the outcome measure. Fraker and others (2014b) provide detailed specifications of the regression models by site.

For all outcomes based on the evaluation's 1-year and 3-year follow-up surveys, we used weights in our regression models to account for survey nonresponse. To calculate the weights, we used logistic models to estimate the propensity of a surviving evaluation enrollee to respond to a survey as a function of his or her baseline characteristics. The surviving-enrollee response rates to the 1-year and 3-year follow-up surveys were 86.7 percent and 82.3 percent, respectively (Table 4). Treatment-group youths were slightly more likely than were control-group youths to respond to the surveys (not shown). The response rate differentials between the two groups for the 1-year and 3-year follow-up surveys were 2.2 percentage points and 3.3 percentage points, respectively.

All YTD participants (specifically, treatment-group youths who signed—or whose legal guardians signed—forms stating that they agreed to receive project services) were included in the implementation analysis of the receipt of services from the YTD projects. We used simple descriptive statistics to analyze the implementation analysis' four measures: receipt (yes or no) of YTD services of any type and of YTD employment-promoting services in particular; and hours of services in those two categories.

Analysis Results

In this section, we present results pertaining to both the receipt of services and the effects of the YTD projects on outcomes in the third year following enrollment.

Receipt of Services

Treatment-group youths in the YTD evaluation were more likely than their control-group counterparts to receive employment services; however, the extent of those services varied considerably across the project sites. We used two data sources and two analytical methods to investigate differences in the receipt of services. First, we used data from the evaluation's 1-year follow-up survey, in conjunction with the evaluation's RCT design, to assess whether the projects had positive effects on the receipt of employment services from any source (not just from the YTD projects) and

on paid employment in the year following enrollment in the evaluation. Second, we used data entered by project staff into ETO to document the receipt of YTD services by the youths in the treatment groups who had agreed to participate in the projects. The latter data permitted a descriptive analysis not based on the RCT design. Among the participants who received YTD services, we analyzed the depth of those services, as measured in hours. Given that the data sources and methods for the two analyses differed, we had no reason to expect the results to be fully consistent.

Table 5 shows that all of the YTD projects had positive and statistically significant ($p < 0.01$) effects on youths' receipt of employment services from any source. Roughly two-thirds of treatment-group youths received employment services, with some variation among locations. The regression-adjusted difference in the receipt of employment services between treatment cases and control cases ranges from about 12 percentage points in Colorado and Florida to 30 percentage points in West Virginia. With the exception of Erie County, the YTD sites had no statistically significant effects on the total number of hours of services of any type. The pattern of results for those two measures indicates that five of the sites shifted the composition of all services received toward a concentration on employment services with no net increase in the total number of hours of services. Apparently, treatment-group youths substituted participation in the YTD projects, with their focus on employment services, for participation in more eclectic non-YTD services.

In the YTD program model, job placement or assistance in finding paid work is the most fundamental employment service. Among all treatment-group members, the rate of paid employment in the year following enrollment—as measured by the evaluation's 1-year follow-up survey—ranged from 23 percent in Florida to 53 percent in Maryland. The YTD projects in Bronx County and Florida had positive effects of about 9 percentage points on paid employment and the West Virginia project's effect was 19 percentage points; all three were statistically significant ($p < 0.01$). The other YTD projects had no statistically significant effects on paid employment in the year following enrollment.[7]

Almost all YTD participants received some YTD services, according to data entered into ETO by project staff; however, the extent of the services varied greatly across the project sites. Table 6 shows

Table 5.
YTD results in the first year after enrollment in the evaluation: All responding enrollees, by site

Site and measure	Treatment-group unadjusted mean [a]	Regression-adjusted results	
		Effect of YTD project	*p*-value
Phase 1 projects			
Colorado			
Receipt of employment services [b] (%)	61.7	12.4	0.00
Hours of services of any type [b]	356.1	-21.8	0.63
Paid employment (%)	34.4	1.3	0.67
Sample size		750	
New York			
Bronx County			
Receipt of employment services [b] (%)	68.0	16.2	0.00
Hours of services of any type [b]	370.8	144.4	0.28
Paid employment (%)	30.5	9.0	0.00
Sample size		789	
Erie County			
Receipt of employment services [b] (%)	66.3	13.7	0.00
Hours of services of any type [b]	445.7	124.5	0.00
Paid employment (%)	43.6	2.9	0.39
Sample size		746	
Phase 2 projects			
Florida			
Receipt of employment services [b] (%)	58.2	12.5	0.00
Hours of services of any type [b]	316.8	-1.5	0.97
Paid employment (%)	22.8	9.4	0.00
Sample size		738	
Maryland			
Receipt of employment services [b] (%)	76.0	22.0	0.00
Hours of services of any type [b]	196.2	27.4	0.38
Paid employment (%)	53.4	-4.2	0.29
Sample size		639	
West Virginia			
Receipt of employment services [b] (%)	63.6	29.8	0.00
Hours of services of any type [b]	242.9	-16.2	0.70
Paid employment (%)	42.7	19.1	0.00
Sample size		733	

SOURCE: Authors' calculations based on the YTD follow-up survey.

NOTE: Sample sizes are the numbers of survey respondents. Effective sample sizes for certain outcomes may be smaller because of survey item nonresponse. Data were weighted to correct for survey nonresponse.

a. The control-group mean can be calculated by subtracting the project effect from the treatment-group mean.

b. Services from any source (YTD or other).

that at least 96 percent of the participants in each site received some type of YTD service. Viewed from the opposite perspective, less than 4 percent of participants were "no shows"—those who had formally agreed to participate but never made themselves available to receive YTD services. At one extreme, participants in the Colorado project received an average of only 7 hours of YTD services of any type, whereas participants in the Bronx County project received an average of 43 hours of services. The extent of YTD services of any type was generally higher for participants in the phase 2 projects, averaging about 30 hours. The receipt of employment-specific YTD services was less

Table 6.

Prevalence and extent of YTD services received in the first year of the evaluation: Participants only, by site

Site and type of YTD service	Percentage receiving service	Average hours of services [a]
	Phase 1 projects	
Colorado		
Any type of YTD service	96.3	7.1
YTD employment services	54.4	4.0
Sample size	401	
New York		
Bronx County		
Any type of YTD service	100.0	42.8
YTD employment services	91.7	20.7
Sample size	387	
Erie County		
Any type of YTD service	98.4	12.7
YTD employment services	85.0	5.8
Sample size	380	
	Phase 2 projects	
Florida		
Any type of YTD service	100.0	28.5
YTD employment services	99.0	13.9
Sample size	388	
Maryland		
Any type of YTD service	99.5	28.3
YTD employment services	99.5	10.2
Sample size	374	
West Virginia		
Any type of YTD service	100.0	33.7
YTD employment services	96.4	23.6
Sample size	388	

SOURCE: Authors' calculations based on project management information systems.

NOTE: Sample sizes are the numbers of treatment-group youths who consented (or whose legal guardians consented for them) to participate in the YTD projects. Some of the participants never made themselves available to receive project services.

a. Calculated based on participants who actually received the services.

consistent across the projects and was higher in the phase 2 sites. Only 54 percent of participants in the Colorado project received YTD employment services, compared with 85 percent of participants in Erie County and more than 90 percent of participants in the other four projects. Among participants who did receive YTD employment services, the extent of those services varied greatly across the projects, with average amounts ranging from 4 hours in Colorado and 6 hours in Erie County to 21 hours in Bronx County and 24 hours in West Virginia.

In summary, all of the YTD projects increased the likelihood that youths who enrolled in the evaluation received employment services from any source, but only the projects in Bronx County, Florida, and West Virginia increased the likelihood that enrollees had paid work experiences within a year of enrollment. Participants in those three projects, along with participants at the Maryland site, had high rates of receipt of YTD employment services, and the number of hours of those services was high relative to the hours of employment services received by participants in the other two projects.

Outcomes in the Third Year after Enrollment

The phase 2 YTD projects generally had statistically significant effects on more outcome measures in the third year after enrollment than did the phase 1

projects. This finding is broadly consistent with the finding, noted above, that two of the three phase 2 projects had positive effects on paid employment in the year after enrollment, compared with just one of the three phase 1 projects. In addition, the phase 2 projects generally delivered more employment services and more services of any type.

Table 7 shows year-3 outcomes for the phase 1 projects. Only the Erie County project had a positive and statistically significant effect on paid employment. It had a positive effect on the employment rate of 8 percentage points ($p < 0.05$), as measured by the evaluation's 3-year follow-up survey. Our analysis of the survey data also found that the Erie County

project increased mean earnings by $521; however, that estimated effect is just short of being statistically significant at the 0.10 level. Table 7 provides no evidence that the Bronx County and Colorado projects had any effects on employment and earnings in the third year.

Both of the New York YTD projects had positive and statistically significant effects on the amount of disability benefits received by evaluation enrollees in the third year and, consequently, on their incomes. The average total income (earnings plus benefits) received in the third year by treatment-group members relative to control-group members was higher by $1,729 in Bronx County and by $1,106 in Erie County (in both

Table 7.
YTD outcomes in phase 1 sites in the third year after enrollment in the evaluation

Site, outcome, and data source	Treatment-group unadjusted mean [a]	Regression-adjusted results	
		Effect of YTD project [b]	p-value
Colorado			
Percentage with paid employment			
3-year follow-up survey	37.9	0.2	0.96
IRS	36.7	1.1	0.73
Annual earnings from employment ($)			
3-year follow-up survey	1,988	-94	0.76
IRS	1,793	74	0.80
Annual disability benefit amount ($)			
SSA	6,841	287	0.16
Youth's total annual income ($)			
3-year follow-up survey and SSA	8,863	82	0.80
Percentage arrested or charged			
3-year follow-up survey	4.0	2.8	0.05
Sample size			
3-year follow-up survey	727		
IRS and SSA	842		
New York			
Bronx County			
Percentage with paid employment			
3-year follow-up survey	32.7	-0.1	0.98
IRS	34.5	0.8	0.79
Annual earnings from employment ($)			
3-year follow-up survey	1,002	25	0.89
IRS	1,094	-291	0.20
Annual disability benefit amount ($)			
SSA	6,277	1,528	0.00
Youth's total annual income ($)			
3-year follow-up survey and SSA	7,497	1,729	0.00
Percentage arrested or charged			
3-year follow-up survey	4.0	-3.8	0.03
Sample size			
3-year follow-up survey	740		
IRS and SSA	884		

(Continued)

Table 7.
YTD outcomes in phase 1 sites in the third year after enrollment in the evaluation—*Continued*

Site, outcome, and data source	Treatment-group unadjusted mean [a]	Regression-adjusted results	
		Effect of YTD project [b]	*p*-value
New York (cont.)			
Erie County			
Percentage with paid employment			
3-year follow-up survey	45.0	7.7	0.03
IRS	39.0	1.0	0.75
Annual earnings from employment ($)			
3-year follow-up survey	2,462	521	0.11
IRS	2,217	215	0.50
Annual disability benefit amount ($)			
SSA	7,280	618	0.01
Youth's total annual income ($)			
3-year follow-up survey and SSA	9,865	1,106	0.00
Percentage arrested or charged			
3-year follow-up survey	3.9	-0.6	0.72
Sample size			
3-year follow-up survey		718	
IRS and SSA		827	

SOURCES: Authors' calculations based on the YTD follow-up survey and SSA and IRS administrative records.

NOTE: Survey sample sizes are the numbers of respondents. Effective sample sizes for certain outcomes may be smaller because of survey item nonresponse. Data were weighted to correct for survey nonresponse.

a. The control-group mean can be calculated by subtracting the project effect from the treatment-group mean.

b. Differences are shown in either percentage points or dollars, as applicable.

cases, $p < 0.01$). In Bronx County, the effect on total income was almost entirely due to the YTD project's positive and statistically significant effect on the disability benefit amount ($p < 0.01$). In Erie County, the effect on total income was the joint product of a statistically significant positive effect on the disability benefit amount ($p < 0.05$) and the previously noted positive but statistically insignificant effect on the survey-based measure of earnings.

The Bronx County project reduced youths' contact with the justice system in the third year after enrollment. Treatment-group members in that site were 3.8 percentage points less likely than were control-group members to have been arrested or charged with delinquency or criminal activity ($p < 0.05$). Like the other YTD projects, the Bronx County site did not provide services explicitly designed to reduce criminal activity; however, it is possible that the general counseling provided to youths and parents, combined with the project's positive effect on youth income, contributed to the favorable result. By contrast, treatment-group members in Colorado were 2.8 percentage points more likely to have been arrested or charged than their control-group counterparts were ($p < 0.10$). It is unclear which of the features of the Colorado project accounted for this unexpected result.

Table 8 shows that the phase 2 projects had statistically significant effects on a greater number of year-3 outcome measures than did the phase 1 projects, particularly in the case of the Florida site. That project had a positive and statistically significant effect of about 7 percentage points on paid employment when measured either with the evaluation's year-3 follow-up survey ($p < 0.05$) or with IRS records ($p < 0.10$). It also had a statistically significant positive effect of $615 on the survey-based measure of earnings in the third year ($p < 0.05$). That result, combined with a statistically significant positive effect on the disability benefit amount ($p < 0.01$), resulted in a statistically significant positive effect of $1,246 on total income ($p < 0.01$) in the third year after enrollment. The positive effect on income may have contributed to the project's statistically significant negative effect of 2.7 percentage points on the proportion of evaluation enrollees arrested or charged with delinquency or criminal activity in the third year ($p < 0.05$). Neither the Florida site nor any

of the other YTD projects provided services explicitly designed to reduce criminal activity.

The Maryland YTD project had no effect on paid employment in the third year after enrollment; however, it did have a statistically significant positive effect of $1,162 on the survey-based measure of earnings ($p < 0.10$). The effect on earnings was the dominant factor behind that project's positive and statistically significant effect of $1,382 on total income ($p < 0.05$), as was expected because only one-fifth of the youths at this site were receiving disability benefits when they enrolled in the evaluation.

The YTD project in West Virginia had a positive and statistically significant effect of 8 percentage points on paid employment in the third year after enrollment, based on IRS data ($p < 0.10$). The estimated effect on paid employment based on data from the 3-year follow-up survey just missed the 0.10 threshold for statistical significance. The West Virginia project increased total income in the third year by a statistically significant $1,010 ($p < 0.01$), primarily because of its statistically significant positive effect of $748 on the disability benefit amount ($p < 0.01$).

Table 8.
YTD outcomes in phase 2 sites in the third year after enrollment in the evaluation

Site, outcome, and data source	Treatment-group unadjusted mean [a]	Regression-adjusted results	
		Effect of YTD project [b]	p-value
Florida			
Percentage with paid employment			
3-year follow-up survey	32.7	7.8	0.02
IRS	36.4	6.5	0.05
Annual earnings from employment ($)			
3-year follow-up survey	1,834	615	0.04
IRS	2,386	282	0.46
Annual disability benefit amount ($)			
SSA	5,340	698	0.00
Youth's total annual income ($)			
3-year follow-up survey and SSA	7,414	1,246	0.00
Percentage arrested or charged			
3-year follow-up survey	0.5	-2.7	0.01
Sample size			
3-year follow-up survey		685	
IRS		695	
SSA		840	
Maryland			
Percentage with paid employment			
3-year follow-up survey	69.4	3.6	0.35
IRS	61.8	-4.1	0.34
Annual earnings from employment ($)			
3-year follow-up survey	6,823	1,162	0.06
IRS	4,534	47	0.93
Annual disability benefit amount ($)			
SSA	1,625	229	0.24
Youth's total annual income ($)			
3-year follow-up survey and SSA	8,682	1,382	0.02
Percentage arrested or charged			
3-year follow-up survey	5.2	-1.5	0.46
Sample size			
3-year follow-up survey		595	
IRS		478	
SSA		798	

(Continued)

Table 8.
YTD outcomes in phase 2 sites in the third year after enrollment in the evaluation—*Continued*

Site, outcome, and data source	Treatment-group unadjusted mean [a]	Regression-adjusted results	
		Effect of YTD project [b]	*p*-value
West Virginia			
Percentage with paid employment			
3-year follow-up survey	35.7	5.7	0.11
IRS	36.2	7.6	0.06
Annual earnings from employment ($)			
3-year follow-up survey	1,971	241	0.40
IRS	1,952	172	0.67
Annual disability benefit amount ($)			
SSA	6,278	748	0.00
Youth's total annual income ($)			
3-year follow-up survey and SSA	8,405	1,010	0.00
Percentage arrested or charged			
3-year follow-up survey	3.9	-0.8	0.66
Sample size			
3-year follow-up survey		676	
IRS		492	
SSA		842	

SOURCES: Authors' calculations based on the YTD follow-up survey and SSA and IRS administrative records.

NOTE: Survey sample sizes are the numbers of respondents. Effective sample sizes for certain outcomes may be smaller because of survey item nonresponse. Data were weighted to correct for survey nonresponse.

a. The control-group mean can be calculated by subtracting the project effect from the treatment-group mean.

b. Differences are shown in either percentage points or dollars, as applicable.

Discussion

In the first year after enrollment in the evaluation, the proportion of youths with disabilities who received employment-promoting services was greater for treatment-group members than for control-group members in all six project sites. However, only three projects—those in Erie County, Florida, and West Virginia—had positive and statistically significant effects on paid employment in the third postenrollment year. Findings on the receipt of services provide insight into the positive year-3 employment results for the Florida and West Virginia projects. In those two sites, YTD employment-service design and delivery led to higher proportions of treatment-group youths, relative to their control-group counterparts, having paid employment in the year after enrollment. In addition, the implementation analysis found that these two projects delivered employment services and services of all types to virtually all of their participants and that the services provided were extensive. The Florida project delivered an average of 14 hours of employment services and 29 hours of services of any type to each participating youth. This project was characterized by comprehensive technical assistance for front-line staff on the delivery of employment services and

by systematic quantitative monitoring of staff service efforts (Fraker and others 2018). The West Virginia project delivered an average of 34 hours of services of any type and 24 hours of employment services to each participating youth. That project placed special emphasis on delivering customized employment supports to youths in settings that were readily accessible, such as at the youth's workplace, school, or home (Cobb, Wittenburg, and Stepanczuk 2018).

The positive effect of the Erie County YTD project on the proportion of youths with paid employment in the third year after enrollment is surprising because that project provided participants with few hours of services and had no significant effect on employment in the first year after enrollment. Given the low intensity of services, we speculate that SSA's waivers for YTD may have contributed to the year-3 employment result.

The YTD project in Bronx County had no effect on employment in the third postenrollment year despite delivering a high average number of hours of services to participating youths and its positive effect on employment in the first postenrollment year. The Bronx County project was unique in two notable respects that help explain these seemingly contradictory findings. First, this project delivered almost all

of its services in workshops and other group activities rather than on an individual basis, as did the other five YTD projects. It is likely that an hour of services received in a group setting represents less intensive exposure than an hour of individualized services. Second, this project placed its participants in 7-week part-time jobs through an arrangement with New York City's Summer Youth Employment Program (SYEP). YTD participants placed in those jobs were paid by the project or SYEP, rather than by their nominal employers, which typically were units of the City University of New York, where the project was housed (Fraker and others 2011). Those work experiences may have been less effective at promoting subsequent employment than the more conventional jobs that the other YTD projects helped their participants to find.

The Maryland YTD project provided a substantial depth of services but had no effect on paid employment in either the first or third year after enrollment, although it did increase youths' earnings in the third year. The lack of positive employment results for this project may be explained by two factors. First, Maryland's was the only YTD site where the target population did not consist exclusively of SSI or DI beneficiaries. In fact, 79 percent of the Maryland evaluation enrollees were not beneficiaries and therefore may not have faced consistently significant barriers to employment. Second, the services available to control-group youths in that site were relatively strong. These two factors imply that many of the Maryland youths who enrolled in the evaluation may not have needed help in finding jobs; but those who did need assistance, even those in the control group, had access to relatively strong services. Consequently, youths in both groups achieved high rates of employment—in fact, the highest rates across all of the evaluation sites.

The YTD projects in Bronx County and Florida provided many hours of services to participants and achieved statistically significant negative (desirable) effects on youth arrests and charges of delinquency or criminal activity in the third year after enrollment in the evaluation. By contrast, the Colorado project provided few hours of services and had a significant positive (undesirable) effect on encounters with the justice system. We do not know what components of the projects generated these results, but we conclude that well-designed and well-implemented interventions providing substantial hours of services may be able to reduce contact with the justice system among youths with disabilities.

Limitations and Implications for Research

The extent of the interventions, as measured by service hours, was uneven across the YTD projects. Consequently, fidelity to the YTD program model varied, especially between the phase 1 and phase 2 projects. It is therefore difficult to draw broad inferences from the findings across the sites. Further, relative to the phase 1 projects, the phase 2 projects received deeper technical assistance in delivering employment-related services. It is impossible to know whether the phase 1 projects would have generated more positive results if they had received and embraced deeper technical assistance designed to improve employment services. The fidelity of interventions to program models would be a useful area to examine in future research.

In a few instances, the evaluation failed to detect effects that were large enough to be policy-relevant. For example, in the West Virginia site, an estimated effect of 5.7 percentage points on the survey-based measure of paid employment in the third year ($p = 0.11$) just missed the 0.10 threshold for statistical significance. The evaluation was designed to have 80 percent power to detect effects of 7 percentage points on employment if based on data for all of a site's enrollees and of 8 percentage points if based on the survey respondents only (Rangarajan and others 2009). For effects smaller than the threshold for detection, the evaluation had an elevated risk of generating estimates that were not statistically significant.

SSA plans further analyses of the YTD evaluation enrollees to determine whether the projects' effects on employment, earnings, and program participation persist or change over time. This research will be based on SSA and IRS administrative data only, as the agency has no plans to conduct additional follow-up surveys of the enrollees. The research will include reestimating the year-3 effects on employment and earnings based on IRS data for 100 percent of the enrollees in the phase 2 sites. Recall that for the present analysis, the year-3 IRS data were unavailable for between 17 percent and 42 percent of the enrollees in those sites. Although there is no reason to expect that the point estimates based on the full data would differ from those presented in Table 8, they would likely have smaller standard errors because of the larger sample sizes. More importantly, the planned future analyses will produce estimates of project effects in periods more than 3 years after enrollment.

The evaluation design did not enable us to disentangle the effects of SSA's YTD waivers from the effects of project services. However, we can make two observations about the waivers as implemented in the YTD evaluation. First, Mathematica survey staff and YTD project staff reported that the waivers were a strong inducement for youths to complete the baseline survey and enroll in the evaluation and, if assigned to the treatment group, to formally agree to participate in project services. Second, the presence of the waivers throughout the evaluation's 3-year follow-up period meant that any positive effects of the projects on youth earnings were unlikely to be manifested as negative effects (reductions) in disability benefits. This is because several of the waivers were designed to moderate the loss of benefits associated with increases in earnings. SSA's planned follow-up analyses (discussed above) will extend the period of study to years after the waivers expired and so should provide a clearer picture of the intervention's potential reduction of disability benefits. SSA might also consider conducting a demonstration of the effects of the YTD waivers in isolation, without any additional services except perhaps enhanced benefits counseling. Such a demonstration would be relatively simple and inexpensive to implement and evaluate.

The youths who enrolled in the YTD evaluation were volunteers who were not representative of all YTD-eligible youths in the project locations. More specifically, in the five sites where recipients of disability benefits constituted the YTD target population, those who enrolled in the evaluation were not representative of all youths receiving disability benefits. Hence, it would be inadvisable to infer from these findings the effects of a hypothetical YTD-like intervention that would be mandatory for all youths receiving disability benefits. However, interventions for youths receiving disability benefits are more likely to be voluntary than mandatory. For example, the Department of Education's current PROMISE initiative is funding voluntary school-to-work transition programs for SSI recipients aged 14–16 in 11 states (Department of Education 2013b; Fraker and others 2014a). The YTD findings may be instructive regarding the likely effects of such voluntary interventions.

Implications for Policy and Practice

The findings presented in this article show that the delivery of substantial amounts of well-designed services to youths with disabilities, in conjunction with rule waivers that enable workers to retain more of their disability benefits, can improve employment and other key transition outcomes in the short- to medium-term. However, the estimated effects of the YTD projects, even those that are statistically significant, are not large in absolute size. For example, the statistically significant estimated effects on the paid employment rate in the third year range from about 6 percentage points to about 8 percentage points in the Erie County, Florida, and West Virginia study sites. Even if we adjust those estimates to reflect the fact that they are based on all treatment-group members rather than just those who participated in the YTD projects, the estimated effects on paid employment remain modest, ranging from about 7 percentage points to 9.5 percentage points. Hypothetical future YTD-like interventions would therefore be unlikely to dramatically reduce the SSI rolls. Nevertheless, a persistent employment effect of this magnitude would suggest that YTD-like interventions could modestly reduce SSI participation and payment amounts for some recipients, in addition to improving recipient well-being by increasing their labor-force engagement and increasing their total incomes.

These findings underscore the need for entities serving youths with disabilities to increase and redirect their efforts to focus on employment services and employment outcomes. Doing so may not only immediately improve employment outcomes (as evidenced by the year-1 findings for three of the project sites), they may also have a sustained effect (as evidenced by the year-3 findings for the Florida site and, to a lesser extent, the West Virginia and Erie County sites). These findings also indicate that such results may not require a net increase in services for youths, but rather a sharpened focus of services on employment. Fostering that focus may require technical assistance by professionals whose training and experience include a strong emphasis on engaging with employers and facilitating employment for youths with disabilities.

Research not only supports the value of employment-focused interventions for youths with disabilities, it also has shown that employment outcomes for young SSI recipients are markedly poor (Wittenburg and Loprest 2007) and that the longer individuals with disabilities remain out of the labor market, the more their likelihood of ever working is significantly diminished (Kraus and others 2001; Young 2010). This in turn implies that dependence on public income support will be lifelong for a substantial fraction of young SSI recipients (Davies, Rupp, and Wittenburg 2009; Rupp, Hemmeter, and Davies 2015). Simply put, youths need to be exposed to work opportunities to have a

reasonable expectation of being employed as adults. In fact, such exposure is mandated in the PROMISE initiative (Department of Education 2013a).

In the three YTD study sites where the projects achieved statistically significant employment results in the third year (Erie County, Florida, and West Virginia), less than half of the treatment-group youths were employed in that year (Tables 7 and 8). Those proportions are substantially lower than the roughly 90 percent of evaluation enrollees who expected at baseline to be employed in the next 5 years (Table 3). The large gap between employment expectations and outcomes suggests that employment results could be greater than those achieved by even the most successful YTD projects. As we acknowledge the substantial efforts of those projects, future interventions should test additional ways to serve youths with disabilities and help them to more fully realize their own expectations for employment.

The Workforce Innovation and Opportunity Act of 2014, or WIOA (Public Law 113-128), provides an opportunity for many youths to receive more extensive employment and transition supports at younger ages than were previously available. Lessons learned from the YTD evaluation may be applicable to states as they implement WIOA. Most of the YTD projects struggled to develop and maintain employment-focused services. For several of the projects, technical assistance provided by TransCen facilitated the delivery and tracking of effective employment services. It will be interesting to see if WIOA services must likewise be supported by technical assistance to achieve equivalent or better results.

Notes

[1] For long-term earnings and program participation patterns of children receiving SSI, see, for example, Davies, Rupp, and Wittenburg (2009); Rupp, Hemmeter, and Davies (2015); and Hemmeter and others (2015). Even among those who no longer receive SSI after turning 18, outcomes are generally poor, with high levels of social problems and low levels of training (Hemmeter, Kauff, and Wittenburg 2009).

[2] For the YTD evaluation design, see Rangarajan and others (2009).

[3] "Enrollment in the evaluation" refers to a specific set of circumstances that is fully described later.

[4] Under the YTD evaluation contract, Mathematica produced six site-specific interim reports—each analyzing project implementation and presenting 1-year results—and a comprehensive final report that presents 3-year results. These reports are available at https://www.ssa.gov /disabilityresearch/youth.htm.

[5] Given that the nonparticipation rate for project services among treatment-group members was a relatively low 16 percent overall, the distinction between the effects of the YTD projects on the intended targets and those who were actually treated is small. Following Bloom (1984), the ITT estimates can be converted to estimates of YTD project effects on youths actually treated by multiplying a given result by 1 divided by the participation rate expressed as a decimal; in this case, 1 divided by 0.84, or 1.19. We focus on the ITT estimates because they better capture the policy effects of voluntary services, such as those provided by the YTD projects.

[6] SSA staff conducted the analyses of IRS earnings data.

[7] Fraker and others (2016) provide estimates of YTD effects in year 1 for a comprehensive set of outcomes.

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Possible State Intervention Options to Serve Transition-Age Youths: Lessons from the West Virginia Youth Works Demonstration Project

by Joyanne Cobb, David C. Wittenburg, and Cara Stepanczuk*

The Social Security Administration (SSA) funded the West Virginia Youth Works intervention as part of the Youth Transition Demonstration (YTD) to improve the employment and independent-living outcomes of youths with disabilities. This project was one of six that constituted the full YTD evaluation. This article examines Youth Works implementation and outcomes to provide a potential case study for other states interested in expanding services to youths with disabilities. We find that Youth Works enrollees reported increases in the use of employment services, in employment, and in income in the year after random assignment into the treatment group, and the effects were large relative to those of previous SSA demonstrations. However, the size of the effects had diminished in the third year after random assignment, by which time project supports were no longer in place, indicating the potential importance of follow-up supports.

Introduction

Policymakers increasingly look for options to improve the prospects of youths with disabilities, who face several potential barriers to making a successful transition to adulthood and independence, especially if they receive cash benefits from the Social Security disability programs. For example, young beneficiaries do not fare as well as youths without disabilities in terms of labor market outcomes (Loprest and Wittenburg 2007). In recognition of these challenges, several state and federal agencies have initiated demonstration projects that aim to improve services and outcomes for transition-age youths; that is, those aged 14–25. Legislatively, the Workforce Innovation and Opportunity Act of 2014 (WIOA, Public Law 113-128) emphasizes improving services and outcomes for transition-age youths, including requiring state vocational rehabilitation (VR) agencies to adequately prioritize services to youths with disabilities.

In 2003, the Social Security Administration (SSA) initiated the Youth Transition Demonstration (YTD) to assess various options for supporting youths with disabilities who received or were at risk of receiving Social Security disability benefits. The YTD included an evaluation that compared results for randomly assigned treatment and control groups at six project sites in different geographic regions. The evaluation's project sites varied substantially in their participant composition and the availability of existing supports.

This article summarizes findings on one of the six projects, West Virginia Youth Works, from interim and final YTD evaluation reports (Fraker and others 2012, 2014). We focus on findings that are particularly

Selected Abbreviations	
CES	customized employment specialist
CWIC	community work incentive coordinator
DI	Disability Insurance
HRDF	Human Resource Development Foundation
SSA	Social Security Administration

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relevant to ongoing state initiatives and demonstration projects that seek to improve services for youths with disabilities. The article also complements another article in this issue of the *Bulletin* (Fraker and others 2018), which reviews the evaluation reports and examines results for all six YTD projects. We focus more heavily on the implementation findings that state policymakers and administrators might find helpful in designing their own programs. We chose the Youth Works project because it covered the largest geographic area and had promising results in the year after implementation. Hence, policymakers and administrators who are developing programs for youths with disabilities, particularly in response to WIOA, might consider some aspects of the Youth Works project worth replicating.

The lead organization for Youth Works, the Human Resource Development Foundation (HRDF), provided intervention supports to treatment-group youths in accessible settings, including at the youths' homes or workplaces (or by phone) in 19 counties throughout West Virginia. Employment supports were strongly emphasized throughout the service period, which lasted 18 months.

The findings suggest that implementing larger state interventions to serve greater numbers of youths with disabilities is feasible. They indicate that services can substantially improve employment outcomes, but they also raise important questions about whether short-term services can generate results that last into adulthood without requiring further transition and employment supports.

Background

The Supplemental Security Income (SSI) program provides cash payments to eligible low-income children and adults with disabilities. To qualify for childhood payments, an individual younger than 18 must have a medically determinable impairment that causes severe functional limitations and will result in death or is expected to last for a minimum of 12 consecutive months. When a child SSI recipient reaches age 18, SSA conducts a redetermination of eligibility using the adult definition of disability; about one-third of recipients are found ineligible because they do not meet the adult criteria (Hemmeter and Gilby 2009). In January 2014, shortly after the YTD evaluation concluded, approximately 1.3 million disabled youths aged 17 or younger received SSI payments at a cost of $864 million a month, or about $10 billion for the year (SSA 2014).

Motivation for YTD Evaluation Projects

Current and former child SSI recipients face less promising adult outcomes than do their counterparts without disabilities. The poor education, employment, and program-participation outcomes of child SSI recipients before and after age 18 indicate some of the challenges these youths face in moving to adulthood. For example, approximately two-thirds of child recipients "stay on" SSI after age 18 based on the initial age-18 redetermination, an appeal of that decision, or a new application (Hemmeter and Bailey 2015; Hemmeter, Kauff, and Wittenburg 2009; Hemmeter and Gilby 2009). Nearly one-third of child SSI recipients drop out of high school before reaching age 18, and 43 percent report a problem in school that resulted in suspension or expulsion (Hemmeter, Kauff, and Wittenburg 2009). Compared with other young adults, former child SSI recipients are substantially less likely to be employed, in school, or in service programs that could lead to education or employment; have substantially higher arrest rates; and have higher dropout rates (Loprest and Wittenburg 2007; Hemmeter, Kauff, and Wittenburg 2009; Wittenburg 2011).

The YTD included six projects that used an experimental design to provide services to youths with disabilities to improve the experience of transition into adulthood.[1] All six projects followed the guideposts for effective transition programs developed in 2005 by the National Collaborative on Workforce and Disability for Youth. The guideposts specifically required work-based experiences (such as job training and volunteer work), activities that promote self-sufficiency (such as self-advocacy training), family involvement, and system linkages (connecting youths to other service providers) (Luecking and Wittenburg 2009).

However, the target populations varied by project (Table 1), as did the types of service emphasized and the geographic scope of the service areas. One project—in Montgomery County, Maryland—targeted youths with mental impairments who were not current SSI recipients but were judged to be at risk of receiving SSI or Disability Insurance (DI) benefits in the

Table 1.
YTD evaluation project sites

State, location(s), and name	Lead organization	Target population	Evaluation enrollees				
				Control group assignees	Treatment group		
			Total		Assignees	Participants	Participation rate (%)
All sites	. . .	. . .	5,103	2,347	2,756	2,318	84.1
Phase 1 projects							
Colorado							
Boulder, El Paso, Larimer, and Pueblo Counties: **Colorado Youth WINS**	Colorado WIN Partners of the University of Colorado Health Sciences Center	SSI and DI beneficiaries aged 14–25	855	387	468	401	85.7
New York							
Bronx County: **CUNY Youth Transition Demonstration Project**	The City University of New York's John F. Kennedy, Jr. Institute for Worker Education	SSI recipients aged 15–19 and their families	889	397	492	387	78.7
Erie County: **Transition WORKS**	Erie 1 Board of Cooperative Educational Services	SSI and DI beneficiaries aged 16–25	843	384	459	380	82.8
Phase 2 projects							
Florida							
Miami-Dade County: **Broadened Horizons, Brighter Futures (BHBF)**	ServiceSource (formerly Abilities, Inc.)	SSI and DI beneficiaries aged 16–22	859	399	460	388	84.3
Maryland							
Montgomery County: **Career Transition Program (CTP)**	St. Luke's House, Inc.	High school juniors or seniors with severe emotional disturbances	805	383	422	374	88.6
West Virginia							
19 counties: **West Virginia Youth Works**	Human Resource Development Foundation, Inc.	SSI and DI beneficiaries aged 15–25	852	397	455	388	85.3

SOURCES: Mathematica Policy Research and project management information systems.

NOTE: . . . = not applicable.

future. Of the five projects that served youths on SSI, two (in Colorado and West Virginia) served multiple counties and the other three (two in New York and one in Florida) served more densely populated areas within a single county.[2] One project (in Bronx County, New York) served only youths aged 15–19, one (in Florida) served youths as old as 22, and the remaining three projects served youths as old as 25. Three projects were implemented in 2006 and 2007 (phase 1), and the other three began in 2008 (phase 2).

Participants in all projects could also use one or more of five YTD waivers of restrictions on standard SSI and DI work incentives (Table 2). The waivers were intended to enhance the incentive to find and retain work and/or participate in YTD activities.

The West Virginia Youth Works Project

In selecting projects for the demonstration, the evaluation contractors worked with SSA to identify sites that were likely to provide some geographic and demographic diversity along with creative interventions that could improve participants' employment and other primary outcomes. Youth Works was a compelling choice for inclusion in the YTD evaluation because it combined an extensive geographic scope with a relatively limited set of services that would otherwise

Table 2.
SSA disability program work incentives and the effects of YTD waivers

Work incentive	Description	Rule change under YTD waiver
SSI		
Student Earned Income Exclusion (SEIE)	Enabled SSI recipients who were students to exclude a certain amount of earnings from countable income and thus avoid reductions in SSI payments. In 2009 and 2010 SSA excluded the first $1,640 of a student's earnings each month, to a maximum of $6,600 in a year. SEIE eligibility ended when a recipient attained age 22.	Age limit was waived for YTD participants for as long as they attended school regularly.
General Earned Income Exclusion (GEIE)	Enabled most SSI recipients to exclude from countable income the first $65 of earnings plus one-half of additional earnings.	YTD participants could exclude from countable income the first $65 of earnings plus three-quarters of additional earnings.
Plan to Achieve Self-Support (PASS)	Enabled SSI recipients to exclude from countable income and resources amounts paid for certain expenses, such as the cost of owning a car, pursuing an education, and purchasing assistive technology, to achieve a specific SSA-approved work goal.	YTD participants could also use a PASS to explore career options or pursue additional education.
Individual Development Account (IDA)	Provided a trust-like account for SSI recipients to save for a specific goal, such as purchasing a home, going to school, or starting a business. SSA matched earnings deposited in an IDA, often at $2 for every $1 deposited by the participant. The money accumulated in an IDA was excluded when determining SSI eligibility, and the earnings deposited during a month were excluded when determining the SSI payment amount.	A YTD participant could also use an IDA to save for other approved goals.
SSI and DI		
Continuing Disability Reviews and Age-18 Redeterminations (Section 301)	Benefits based on disability could continue despite a negative Continuing Disability Review or age-18 medical redetermination if: • the beneficiary was participating in any of certain programs; and • SSA determined that continued participation would increase the likelihood that the individual would remain off the disability rolls permanently once benefits stopped. These "likelihood" determinations normally had to be made on a case-by-case basis.	If SSA determined that medical disability had stopped and the participant was no longer eligible for assistance, he or she could continue to receive both cash benefits and health care services while participating in YTD.

SOURCES: SSA (2017) and "YTD Modified SSI Program Rules (Waivers) Descriptions" (https://www.ssa.gov/disabilityresearch/ytdmodifiedssi.html).
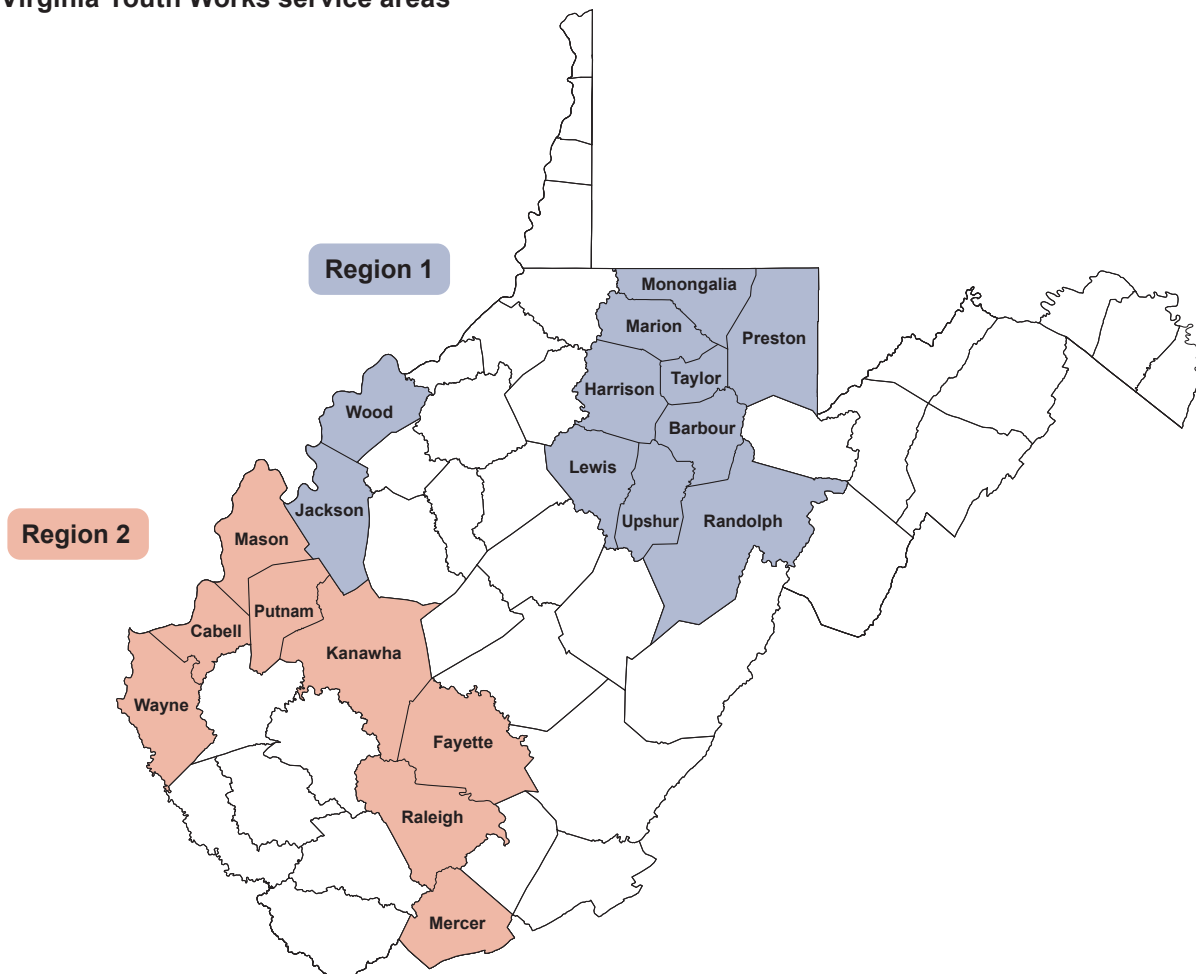
be available. Through its existing network of offices, HRDF was able to reach youths in 19 counties, which were divided into two geographic regions (Chart 1). Selecting a site in West Virginia was also strategically important because of the prevalence of individuals with disabilities among the state's population; self-reported disability among adults and children in 2009 was 19 percent in West Virginia compared with 12 percent nationally (Fraker and others 2012). Consistent with this high prevalence of self-reported disability, more than 80,000 residents of West Virginia (approximately 9,000 of whom were younger than 18) received SSI in 2010 (SSA 2012, Tables 7.B1 and 7.B8).

Prior to the Youth Works rollout, existing supports for youths in West Virginia were relatively limited and poverty rates were high, suggesting that a strong intervention could generate substantial improvement (Wittenburg and others 2009). The YTD evaluation team reviewed the pre–Youth Works services offered in the state, including those available from public schools, the West Virginia Division of Rehabilitation Services, Workforce West Virginia, and the state Bureau for Behavioral Health and Health Facilities. Although the services were available to all youths with disabilities, administrators noted that, in practice, services often were fragmented and uncoordinated—especially across county lines—and many agencies had waiting lists. Absent a school counselor or case manager to function as a service broker, youths might too often be left without any service options. Access to services was particularly challenging in rural areas, where service and transportation options were few.

The Youth Works intervention offered an opportunity to address potential gaps in existing services for youths with disabilities. Given the relatively high poverty rate and low employment among youths with disabilities, a successful Youth Works project could substantially improve the effects of existing services.

Chart 1.
West Virginia Youth Works service areas

SOURCES: Mathematica Policy Research and HRDF.

Youth Works Study Design

The evaluation team, led by Mathematica Policy Research and its subcontractor MDRC, interviewed SSI and DI beneficiaries aged 15–25 to assess their interest in participating in the YTD evaluation.[3,4] A young person enrolled in the evaluation by completing a baseline survey and sending Mathematica a signed consent form affirming his or her decision to take part (Fraker 2013). Emancipated youths could sign the consent form themselves; otherwise, a signature by a legal guardian was required. For the 852 youths who provided consent to participate, the evaluation team randomly assigned 455 to a treatment group and the other 397 to a control group. West Virginia Youth Works staff provided at least some type of direct service to 388 of the 455 youths in the treatment group. Youths in the control group had access only to the existing services available to all SSI recipients in the community, such as Individual Education Plans and VR services. The effects of the YTD interventions for all 455 treatment-group youths are measured against those for the 397 control-group youths.

As noted earlier, HRDF staff implemented the interventions and supports for treatment-group youths in accessible settings, including at the youths' homes or workplaces or by phone, in 19 counties. An additional subcontractor (TransCen) provided technical assistance to support service delivery in each of the HRDF locations. Employment supports were strongly emphasized during the typical 18-month service period. HRDF staff customized the employment and other supports to address the youths' specific strengths, skills, and career interests.

The evaluation team expected that the YTD interventions would have short-term effects on employment-promoting service use, employment, and income (Fraker and Rangarajan 2009). They did not expect the interventions to have short-term effects on benefit receipt, given the availability of the YTD waivers to negate benefit reductions that otherwise would accompany earnings gains.

We interviewed HRDF staff, youths, and the youths' families to obtain qualitative perspectives about service delivery. We also tracked quantitative service-delivery data entered by project staff using its Efforts to Outcomes management information system. These data were used to assess whether the intervention included the YTD's core components and the extent to which Youth Works staff members were able to deliver services related to those core components.

In addition to using findings based on qualitative data collected by the evaluation team and on service-delivery data from the management information system, the YTD evaluation reports analyzed project effects using a combination of survey results and SSA data for 1-year and 3-year follow-up intervals.[5] Prior to the random assignment of potential Youth Works participants into treatment and control groups, the evaluation team's baseline survey collected demographic and other information (such as school attendance) that were not included in the administrative records. The evaluation team also conducted two follow-up surveys. The first survey collected information on service receipt, educational attainment, employment and earnings, attitudes and expectations, and other outcomes for evaluation enrollees in the first year after random assignment. The second collected information on many of the same variables, plus outcomes related to self-determination, postsecondary education services and training, and contacts with the justice system, in the third year after random assignment. The outcome variables were aligned with best practices based on the guideposts for success developed by the National Collaborative on Workforce and Disability for Youth. Finally, the evaluation team used administrative data to track long-term employment and earnings as well as monthly disability benefit amounts and the use of SSA work incentives and YTD waivers.

The project analysis sought to capture all the avenues by which Youth Works could affect the youths participating in the specialized YTD services (Fraker and Rangarajan 2009). Based on the project's design and the stated goals of YTD, we focused on Youth Works' effects on selected primary and supplementary outcomes, shown in Table 3. The outcomes are arranged into four domains: employment-promoting service use, employment and earnings, personal income, and ongoing engagement in productive activities such as employment, education, and training. Those domains (and certain other outcomes) are patterned after those included in the full YTD evaluation (Fraker and others 2014). That report selected each outcome measure according to its importance to the successful transition from SSI child recipient to self-sufficient adult, and to its predicted timing. Hence, in summarizing our findings, we put more emphasis on the primary outcomes because they are more directly related to the original goals of YTD implementation, whereas the supplementary outcomes provide more exploratory indicators of project effects. Year-1 findings are presented in three domains: employment-promoting

service use, employment and earnings, and personal income. Year-3 findings revisit the employment and earnings and personal income domains, and summarize long-term engagement in productive activities. We also briefly summarize additional outcomes from two of the YTD final report's other primary domains (not shown in Table 3): contact with the justice system and self-determination.[6]

Project impacts are expressed as the differences in outcomes between treatment-group and control-group members. We used regression adjustment to increase the precision of the estimates. Our estimates are based on sample sizes that vary depending on the data source. The administrative-data sample includes all 852 YTD-eligible youths, whereas the survey sample includes the 733 members of the original YTD evaluation recruits who responded to the 1-year follow-up survey.

The YTD participants in West Virginia included a diverse mix of current and former child SSI recipients aged 15–25 (Table 4). At baseline, the majority (63 percent) were not in school. Most participants were aged 18 or older (81 percent), white (80 percent), and had annual family income of less than $25,000 (72 percent). Average annual earnings among recipients were

Table 3.
Youth Works outcome measures and data sources

Measure	1-year follow-up survey	3-year follow-up survey	Administrative data
Employment-promoting service use			
Primary outcome			
Used any employment-promoting service	✓		
Employment and earnings			
Primary outcomes			
Employed for pay, any time in the past year	✓	✓	
Total earnings in the past year	✓	✓	
Supplementary outcomes			
Total hours worked in paid jobs in the past year	✓	✓	
Employed for pay at the time of survey		✓	
Employed in calendar year			✓
Total earnings in calendar year			✓
Personal income			
Primary outcome			
Total income in the past year (earnings, DI benefits, SSI payments)	✓	✓	
Supplementary outcomes			
DI or SSI benefit received in the past year			✓
Total DI or SSI benefit amount in the past year			✓
Proportion of total income from earnings			✓
Current public or private health insurance coverage		✓	
Receipt of public assistance (Temporary Assistance for Needy Families, Supplemental Nutrition Assistance Program, housing assistance) in the past year		✓	
Productive activities (employment, education, and training)			
Primary outcome			
Took part in paid or unpaid employment, education, or training in the past year		✓	
Supplementary outcomes			
Took part in education or training program in the past year		✓	
Completed high school by time of survey		✓	
Ever enrolled in college or technical school		✓	

SOURCE: Authors' tabulation based on Fraker and others (2014).

Table 4.
Demographic characteristics of Youth Works participants, by data source (percentage distributions)

Characteristic	All	Treatment	Control	Difference	p-value [a]
		Baseline survey data [b]			
Sample size	733	[c] 389	344	. . .	. . .
Race	. . .	. . .	. . .	. . .	0.75
White	80.2	81.0	79.3	1.8	. . .
Black	8.9	8.7	9.1	−0.5	. . .
American Indian, Alaska/Hawaii Native, or Pacific Islander	3.5	2.8	4.3	−1.5	. . .
Asian	0.0	0.0	0.0	0.0	. . .
Other or unknown	7.4	7.5	7.3	0.2	. . .
School attendance	. . .	. . .	. . .	. . .	0.03
None	63.2	65.2	60.9	4.4	. . .
Regular high school	25.9	27.3	24.4	2.9	. . .
Special high school	0.5	0.0	1.1	−1.1	. . .
Other school	10.4	7.5	13.7	−6.2	. . .
Annual family income	. . .	. . .	. . .	. . .	0.26
Less than $10,000	38.0	35.0	41.4	−6.4	. . .
$10,000–$24,999	33.7	34.8	32.5	2.3	. . .
$25,000 or more	28.2	30.2	26.1	4.1	. . .
		Administrative data			
Sample size	852	455	397	. . .	. . .
Sex	. . .	. . .	. . .	. . .	0.61
Male	55.3	56.2	54.2	2.0	. . .
Female	44.7	43.8	45.8	−2.0	. . .
Age	. . .	. . .	. . .	. . .	1.00
15–17	18.8	18.8	18.8	0.0	. . .
18–21	41.9	41.8	42.1	−0.3	. . .
22–25	39.3	39.5	39.1	0.3	. . .
Average age (years)	20.5	20.5	20.5	0.0	1.00
SSI recipient status					
Yes	93.6	93.9	93.3	0.6	0.75
No	6.4	6.1	6.7	0.6	. . .
Duration of payment receipt (years)	7.9	8.0	7.8	0.3	0.59
Primary disabling condition	. . .	. . .	. . .	. . .	0.87
Mental illness	23.9	22.2	25.8	−3.6	. . .
Cognitive or developmental disability	42.0	42.9	41.1	1.8	. . .
Learning disability/Attention Deficit Disorder	13.7	14.6	12.7	1.9	. . .
Physical disability	16.1	15.9	16.3	−0.4	. . .
Speech, hearing, or visual impairment	4.3	4.4	4.1	0.2	. . .
Earnings in year before random assignment ($)	801	720	893	−173	0.33

SOURCES: YTD baseline survey and SSA records.

NOTES: Data are weighted to account for survey nonresponse.

. . . = not applicable.

a. Calculated using either a two-tailed *t*-test or a chi-square test.

b. Statistics reflect the baseline survey responses of the Youth Works enrollees who ultimately responded to the 1-year follow-up survey rather than those of all 852 baseline survey respondents.

c. Comprises treatment-group survey respondents (irrespective of service receipt) rather than only the participants who received services.

relatively low ($801), given that most were out of school. Recipients' income and earnings characteristics at baseline indicated potential need for the types of employment supports Youth Works was designed to provide. There were no statistically significant differences between the treatment and control groups.[7]

Service Delivery

Youth Works provided comprehensive services to promote employment and foster self-sufficiency for youths with disabilities, emphasizing work-based experiences in particular. Youth Works staff customized the services to meet the specific needs of individual participants and often met with them in their homes, schools, community centers, and workplaces. The project operated in 19 counties, each of which was assigned to one of two administrative regions, covering the northern and southern portions of the state. Enrollment occurred during two phases in each region. The model of service delivery and the duration of services were identical in both phases and both regions, but the provision of services was occasionally more extensive during the second phase.

HRDF, in partnership with the Center for Excellence in Disabilities (CED) at West Virginia University, implemented the benefits counseling intervention at Youth Works. Although HRDF provided most project services, CED provided the benefits counseling for the youths and their families. The front-line service-delivery staff consisted of customized employment specialists (CESs) and job developers with business development skills and experience in human services from HRDF; and of benefits counselors known as community work incentive coordinators (CWICs)[8] from CED. The CESs recruited youths and enrolled them as participants in the project. They then met one-on-one with the participants, often in their homes, to conduct assessments, provide case management, and prepare them for employment. The job developers worked primarily with employers to identify job opportunities for participants. They also coordinated with the CESs and worked directly with participants to provide job placement services. Finally, the CWICs provided planning and counseling on benefits from SSA and other public assistance programs and assisted Youth Works participants in obtaining the YTD waivers.

Front-line Youth Works staff from HRDF and CED delivered project services to individual youths in four stages. In the first stage, HRDF staff enrolled treatment-group members into the project and provided an initial assessment and benefits counseling. The initial assessment included a person-centered plan for services, which was driven by an individual's strengths and preferences. During the second stage, HRDF staff started job development and placement services designed in part to prepare youths for job searching and employment. Project staff also conducted job development activities and provided ongoing supports for participants who had found employment. During the third stage, project staff provided post-employment benefits counseling, job coaching, and worksite visits. In the final stage, as HRDF closed out services at 18 months after enrollment, staff reviewed the participant's person-centered plan, and benefits counselors provided guidance on the YTD waivers.

Youth Works staff also provided case management and supports throughout a youth's engagement with the project. These supports were all employment-related (for example, interview-skills and résumé-writing training). In addition, staff provided transportation services, supports for youths with goals of further education, and referrals to social and health care services. Although referrals were sometimes provided to family members for various services, HRDF staff targeted the vast majority of services recorded in the Efforts to Outcomes system directly to the youths.

Initial challenges in reaching some youths were resolved later in the project. For instance, in the first year of the project, CESs often called youths multiple times to try to schedule enrollment meetings, to no avail. The CESs turned to using in-person visits to the youths' homes to spark interest in the project, schedule enrollment meetings, and complete the enrollment process.

The project's implementation revealed the importance of establishing clear benchmarks that emphasized employment and designated the roles of the staff—particularly CESs and job developers, who had some overlapping responsibilities. For example, during the initial months, project staff had difficulty in effectively promoting employment for youths in their caseload because they had no clear benchmarks to aim for. Recognizing this deficit, Youth Works management and TransCen developed specific benchmarks involving paid job placements, work-based experiences, and employer contacts for CESs and job developers. Staff members supported having explicit goals, which they viewed as helpful.

Front-line staff also faced challenges in delivering services to youths in rural locations. Transportation was especially problematic for many Youth Works participants. Project resources included a flexible pool of

funds to facilitate participant access to needed supports. The funds were used primarily to transport youths to project activities and their places of employment. Additionally, Youth Works staff proactively referred youths to service providers whose own outreach capacities might be limited. They also helped youths to navigate known community services such as VR. HRDF staff also followed up with youths after referral.

All participants in Youth Works received project services from at least one of the four service categories shown in Table 5. The employment-related and case management services delivered by Youth Works staff were generally more extensive than those provided in other YTD projects. On average, Youth Works staff made 46 service contacts of any type per service recipient, lasting a total of 34 hours. Of particular note was that the vast majority of these service hours were for employment-related services (24 hours), which were emphasized in the Youth Works model. Fraker (2013) showed that Youth Works had the highest employment-related service hours per service recipient among the six YTD sites; the other sites ranged from 4 hours to 21 hours per recipient.

Consistent with the Youth Works program model, nearly all participants (96 percent) received employment-related services, and the number and cumulative duration of service contacts per service recipient were greater for that category than for

any other. Most of these youths received career-exploration and job-search services, which included discussions of their career interests and job opportunities, assistance in preparing résumés, and guidance on conducting job searches. Providers used the person-centered planning model, which allows individuals with disabilities to participate directly in their transition planning and is associated with positive employment outcomes. As noted, project staff made 29 contacts per recipient to deliver employment services, with a cumulative duration of 24 hours. Additionally, almost all Youth Works participants (99 percent) received case management services, and their frequencies and cumulative durations were relatively high. The most common type of case management service, by a considerable margin, was a general check-in, in which a staff member contacted participants or their families to determine how they were doing and whether they needed assistance.

Nearly all youths received benefits counseling, although the service time was relatively limited compared with employment-related and case management services. Education-related services were not central to the Youth Works program model; correspondingly, a lower percentage of participants used them, and their frequency and duration among the participants who used them were lower than those for the employment-related and case management services.

Table 5.
West Virginia Youth Works indicators of support service use, by service type

Indicator	Any service	Employment-related	Case management	Education-related	Benefits counseling
Share of participants receiving service (%) [a]	100.0	96.4	99.0	72.2	98.7
Number of contacts per service recipient					
Average	[b] 46.1	28.9	15.9	3.6	7.1
Median	[b] 37.0	18.0	14.0	2.0	6.0
Hours per service recipient					
Average	33.7	23.6	6.0	2.0	2.9
Median	17.9	8.3	4.2	0.5	2.8
Service time per contact (minutes)					
Average	29.7	37.0	18.9	29.4	19.1
Median	15.0	15.0	15.0	20.0	15.0
Contacts exceeding 30 minutes (%)	19.3	24.5	10.4	18.9	13.3

SOURCE: Youth Works Efforts to Outcomes management information system.

NOTES: Excludes service contacts of less than two minutes and mail contacts that were not related to benefits counseling.

Statistics on service contacts and times are per participant using that service.

a. Percentages reflect shares of the full sample of 388 participants.

b. Number of contacts capped at one per day per youth.

Findings

We examine whether the services provided by Youth Works, combined with SSA's waivers for YTD, had longer-term effects on youth outcomes by including results from the third year after enrollment. We first assess whether design elements particular to the intervention increased receipt of employment-promoting services in the first year. We then examine the trajectory of outcomes 1 year and 3 years after project entry for the following measures: paid employment and earnings, personal income, and engagement in productive activities. The year-1 results reflect outcomes observed while treatment-group youths were still receiving services, whereas the year-3 results reflect outcomes observed after the youths had completed all Youth Works services (which, as noted above, lasted 18 months). Finally, we include a summary of other social and self-determination outcomes in year 3 from the full YTD report (Fraker and others 2014).

Employment-Promoting Services (Year 1 Only)

Youth Works had a positive effect on the use of employment-promoting services, according to the year-1 follow-up survey. Slightly less than two-thirds of the treatment-group youths reported having used an employment-promoting service from any source (not just Youth Works) in the year following their enrollment in the evaluation (Table 6).[9] Youth Works brought about a 30 percentage point increase in the use of employment-promoting services relative to the control group. This primary outcome combines supplementary measures of positive Youth Works effects, such as those on résumé-writing and job-search support (31 percentage points) and on benefits/incentives counseling (24 percentage points).

Employment and Earnings (Years 1 and 3)

Youth Works also had a positive effect on employment and earnings in the year after enrollment in the evaluation, but the size of the effect diminished by the third year. The outcome of primary interest was whether the youths had paid employment during the year. Nearly 43 percent of treatment-group youths worked for pay at some time in the year after random assignment, which was 19 percentage points higher than the result for control-group youths (Table 7). That estimated difference is statistically significant. In the third year after random assignment, the difference between the proportions of treatment-group and control-group youths who had worked for pay had largely dissipated to 5.7 percentage points, a result which falls just short of being statistically significant at the 10 percent level.[10] We also found that earnings in the year after random assignment were about 50 percent higher for treatment-group youths than for the control group; the former group earned an average of $1,559 that year, or $524 more than we estimated for the control group. In the third year after random assignment, the magnitude of the difference dissipated and was not statistically significant. The year-3 results are notable because the treatment group's mean earnings were higher in year 3 than in year 1 ($1,971 versus $1,559), indicating that the difference dissipated over time because of a larger increase in the mean earnings of control-group youths.

Table 6.

Employment-promoting service use of Youth Works treatment-group members in the first year after evaluation enrollment

Measure	Unadjusted mean (%)	Regression-adjusted results	
		Treatment-group mean minus control-group mean	p-value [a]
Primary outcome			
Used any employment-promoting service	63.6	29.8	0.00
Supplementary outcomes: Youth received—			
Résumé-writing and job-search support	43.1	31.0	0.00
SSA program benefit or work incentive counseling	39.0	23.7	0.00

SOURCE: YTD follow-up survey.

NOTES: Data are weighted to account for survey nonresponse.

Treatment-group sample size = 388.

a. Calculated using a two-tailed t-test.

Table 7.
Selected employment and earnings outcomes for Youth Works treatment-group members, by follow-up interval

Measure and interval	Unadjusted mean	Regression-adjusted results	
		Treatment-group mean minus control-group mean [a]	p-value [b]
Primary outcomes			
Worked for pay in past year (%)			
Year 1	42.7	19.1	0.00
Year 3	35.7	5.7	0.11
Total earnings in past year (2008 $)			
Year 1	1,559	524	0.01
Year 3	1,971	241	0.40
Supplementary outcomes			
Total hours worked in paid jobs in past year			
Year 1	233.9	80.2	0.01
Year 3	269.6	29.2	0.44
Working for pay at time of survey (%)			
Year 3	23.0	3.6	0.23
Worked for pay in calendar year (%)			
Year 1	45.3	17.6	0.00
Year 2	39.4	10.7	0.00
Year 3	36.2	7.6	0.06
Total earnings in calendar year (2008 $)			
Year 1	1,665	430	0.04
Year 2	1,790	199	0.46
Year 3	1,952	172	0.67

SOURCES: YTD follow-up surveys; SSA records; and Hemmeter (2014).

NOTES: Data are weighted to account for survey nonresponse.

For item-specific data sources, see Table 3.

Survey sample sizes: year 1 = 389 (treatment group), 344 (control group); year 3 = 365 (treatment group), 311 (control group).

a. Differences are shown in percentage points, dollars, or hours, as applicable.

b. Calculated using a two-tailed t-test.

Hemmeter (2014) reported further evidence of the yearly effects of Youth Works and supported the general trajectory of diminishing results by year 3. That study found a statistically significant difference in earnings in the second year after randomization which was closer in magnitude to the year-1 effects shown in Table 7. Specifically, Hemmeter estimated a difference in the prevalence of youths with earnings of 16 percentage points (44.0 percent of treatment-group youths compared with 28.0 percent of control-group youths) in year 2. Taken together, these findings indicate that year-1 and year-2 project effects were large compared with those in year 3, which perhaps is not surprising given that HRDF services ended after 18 months. The positive effects declined relatively quickly once services were no longer available to treatment-group participants. Outcomes for supplementary employment and earnings measures followed the same trend as those for the primary measures: a positive and statistically significant difference between treatment and control groups in the first year after enrollment, which largely disappeared by the third year. For example, treatment-group youths were employed in paid jobs for more hours than were control-group youths in the first year after random assignment (and the difference was statistically significant), but the two groups did not have significantly different outcomes in the third year after random assignment.

Personal Income

Youth Works had a positive effect on personal income—defined in this context as combined income from earnings and SSA program benefits—in the first and third years after random assignment (Table 8).

Table 8.
Selected personal-income outcomes for Youth Works treatment-group members, by follow-up interval

Measure and interval	Unadjusted mean	Regression-adjusted results	
		Treatment-group mean minus control-group mean [a]	p-value [b]
Primary outcome			
Combined income from earnings and SSA program benefits in past year (2008 $)			
Year 1	8,060	717	0.00
Year 3	8,405	1,010	0.00
Supplementary outcomes (year 3 only)			
Received any disability benefits in past year (%)	88.6	8.7	0.00
Amount of disability benefits in past year (2008 $)	6,278	748	0.00
Earnings as a percentage of income	16.5	−0.8	0.74
Health insurance [c] coverage (%)	90.5	2.9	0.22
Received any public assistance [d] in past year (%)	50.2	−2.8	0.44

SOURCES: YTD follow-up surveys and SSA records.

NOTES: Data are weighted to account for survey nonresponse.

For item-specific data sources, see Table 3.

Survey sample sizes: year 1 = 389 (treatment group), 344 (control group); year 3 = 365 (treatment group), 311 (control group).

a. Differences are shown in dollars or percentage points, as applicable.

b. Calculated using a two-tailed t-test.

c. Public or private.

d. Includes Temporary Assistance for Needy Families, Supplemental Nutrition Assistance Program, and housing assistance.

The income data are based on youth-reported earnings in the survey and disability benefit amounts from SSA records. The income of treatment-group youths exceeded that of control-group youths by $717 in the first year, representing a positive relative effect of about 10 percent; the difference of $1,010 in the third year represents a positive relative effect of 14 percent for the treatment group.

The supplementary outcomes, shown for year 3 only, provide some context for the factors that drove the effects on personal income. First, the share of treatment-group youths that received any disability benefits during the third postenrollment year exceeded the share of control-group youths by 9 percentage points, a difference that is statistically significant at the 1 percent level. The treatment group also received an average of $748 more than the control group in disability benefits in the third year after enrollment. This difference is also statistically significant at the 1 percent level. Positive effects on the prevalence and amount of benefits received are not surprising. We anticipated that the SSA rule waivers for YTD participants would result in increased benefits even in the third year after enrollment because they allowed youths to keep more

of their benefits while earning work income. Of particular relevance is the Section 301 waiver, which delayed the effectuation of a negative age-18 SSI eligibility redetermination for 4 years after Youth Works enrollment. The greater benefit amounts and work earnings received by treatment-group youths (although not statistically significant) account for the project's effect on total income. Finally, Youth Works did not shift the main source of income from benefits toward earnings, and it had no effect on the prevalence of either public assistance receipt or health insurance coverage.

Productive Activities

Youth Works had a positive effect on engagement in productive activities which, as noted earlier, is a composite measure of a youth's participation in education, training, and paid or unpaid employment in the third year after enrollment in the evaluation. Table 9 shows that 54 percent of treatment-group youths participated in at least one productive activity, a difference of 8 percentage points over control-group youths, which is statistically significant at the 5 percent level. Among the supplementary outcomes, we observed a small but statistically significant difference in college

Table 9.
Selected third-year productive-activities outcomes for Youth Works treatment-group members

Measure	Unadjusted mean (%)	Regression-adjusted results	
		Treatment-group mean minus control-group mean	p-value [a]
Primary outcome			
Had paid or unpaid work or participated in education or training in past year	53.5	7.6	0.04
Supplementary outcomes			
Participated in education or training in past year	27.0	5.1	0.09
Completed high school [b]	69.3	3.3	0.34
Ever enrolled in college or technical school	10.4	−3.5	0.09

SOURCE: YTD follow-up survey.

NOTES: Data are weighted to account for survey nonresponse.

Sample sizes: 365 (treatment group), 311 (control group).

a. Calculated using a two-tailed *t*-test.

b. Earned diploma or General Educational Development (GED) certificate or higher by time of survey.

or technical school enrollment, with the treatment group having a lower enrollment rate than the control group. Although we are cautious not to overinterpret this effect, one possible explanation is that the heavy emphasis on employment-promoting activities led some treatment-group youths to substitute employment for additional schooling.

Other Outcomes

Fraker and others (2014) also examined two other outcome domains (not shown in our tables) that provide additional context for the Youth Works findings: contacts with the justice system and measures of self-determination. The authors did not find any statistically significant project effects in those domains. Specifically, they found a small difference in the prevalence of being arrested or charged with a crime during the 3-year follow-up period (4 percent for the treatment group versus 5 percent for the control group). The authors also showed that there was no effect on any of the self-determination measures, perhaps reflecting the limited number of services focused on this domain.

Discussion

The Youth Works project demonstrates that it is possible to scale service delivery over many counties in a single state and serve a large sample of youths with disabilities by using service providers that can deliver individualized supports. HRDF successfully set up an infrastructure and provided services, referrals, and follow-up to 388 youths with disabilities in 19 different counties. This is notable given that HRDF was traditionally an employment service provider with relatively limited experience providing services specifically for persons with disabilities. For Youth Works, HRDF staff adopted the person-centered planning model to provide ample employment opportunities to the youths and delivered substantial service hours. The staff exhibited expertise in business development and human services.

The findings from the Youth Works project are potentially relevant to the current implementation of the WIOA, which emphasizes serving transition-age youths. Under WIOA, state VR agencies are setting aside at least 15 percent of their funding to provide transition services to youths with disabilities. Although the characteristics of youths who enter VR may differ from those included in YTD, state VR agencies may nonetheless find the lessons here informative in identifying potential service providers with which to collaborate, particularly those with a customized employment-services background and experience serving at-risk youths. Additionally, SSA's Work Incentive Planning and Assistance program could enhance outreach by providing CWIC services specifically to youths in transition.

An important implementation lesson from the Youth Works experience was to use statistical benchmarks to reinforce project goals. Youth Works' focus on employment was emphasized in the technical assistance delivered to the project. In qualitative

interviews, both staff members and youths expressed strong support for explicit goals that clarify the project's purpose. The benchmarks also supported front-line staff, as the technical assistance provider (TransCen) was able to link outcomes such as employment to the number of service hours provided.

The findings also indicate the potential implications of providing extensive short-term supports, in that substantial year-1 outcomes had diminished by year 3. Specifically, Youth Works had positive effects on the prevalence of paid employment during years 1 and 3, but effects on earnings did not persist into year 3. Youth Works also increased the youths' total income (through the YTD waivers' effects on benefits) and participation in productive activities. The promising 1-year results reflect the extensive, yet short-term, Youth Works service model's emphasis on employment—as well as the comparatively poor outcomes of the control group. However, the dissipation in effects by year 3 indicates that the intervention was less successful in influencing long-term outcomes, which may reflect the fact that Youth Works participants' eligibility for services was capped at 18 months.

In summary, the findings from Youth Works illustrate the potential advantages of developing and implementing a statewide employment-focused intervention to improve short-term outcomes for child and young-adult SSI recipients. Other states could presumably test a similar service-delivery model if they could develop a strong network of providers with staff who are able to implement extensive customized employment services with clear benchmarks. Despite some promising findings, the short duration of services (18 months) might have contributed to a general decline in effects from year 1 to year 3.

Notes

[1] The YTD also included some project sites that were not part of the final evaluation because they did not use the experimental design. For details, see Martinez and others (2008) and Bucks Camacho and Hemmeter (2013).

[2] Four of these projects (in Colorado; Erie County, New York; Florida; and West Virginia) also served DI beneficiaries.

[3] Although the nationwide YTD evaluation targeted youths aged 14–25, individual sites were permitted to narrow that range; accordingly, West Virginia targeted the 15–25 age group.

[4] Our discussion focuses on SSI recipients because they accounted for more than 93 percent of the Youth Works enrollees.

[5] The YTD final report details the data sources for the evaluations (Fraker and others 2014).

[6] The primary outcome in the self-determination domain is measured with an index that combines indicators of autonomy, internal locus of control, and external locus of control. For more details, see Fraker and others (2014).

[7] However, Fraker and others (2012) found some small differences when they examined a broader set of variables. For example, treatment-group youths were more likely than control-group youths to report that their fathers had completed high school.

[8] CWICs are trained and certified through the Work Incentive Planning and Assistance program, which was established in 2006 as a modification of the Benefits Planning, Assistance, and Outreach program of the Ticket to Work and Work Incentives Improvement Act of 1999.

[9] The use of employment-promoting services shown in Table 6 differs from the use of employment-related services shown in Table 5. Table 6 reports any employment services that survey respondents recalled receiving in the past year. By contrast, Table 5 reports Efforts to Outcomes data on the types of services delivered to treatment-group service recipients only.

[10] However, when we included unpaid work, we found that Youth Works had a statistically significant positive effect of 6.1 percentage points on the share of youths who were employed (not shown).

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