

Final Report on Program Effects and Lessons from the Family Self-Sufficiency Program Evaluation Appendixes



Appendix A

Exhibit A.1. Baseline Characteristics of Households in the FSS Impact Sample, by Research Group

Characteristic	FSS Group	Control Group	Total
Average number of household members ^a	3.2	3.2	3.2
Average number of adults in household ^a	1.5	1.4	1.5
Households with more than one adult (%)	35.3	32.0	33.7 *
Average number of children in household	1.8	1.8	1.8
Number of children in household (%)			
0	22.8	24.8	23.8
1	24.2	21.1	22.7
2	24.1	25.3	24.7
3 or more	28.9	28.8	28.8
For households with children, age of youngest child (%)			
0–2 years	21.0	20.6	20.8
3–5 years	19.5	21.3	20.4
6–12 years	42.1	40.5	41.3
13–17 years	17.4	17.5	17.5
Primary language spoken at home is English (%)	91.9	92.4	92.2
Receives TANF (%)	16.3	15.3	15.8
Receives food stamps/SNAP (%)	71.2	67.9	69.6 *
Length of time receiving Section 8 Housing Choice Voucher (%)			
Less than 1 year	5.0	4.9	5.0
1–3 years	27.2	28.1	27.6
4–6 years	21.9	21.3	21.6
7–9 years	15.2	15.3	15.2
10 years or more	30.7	30.4	30.6
Total household income (%)			
\$0	4.4	4.7	4.5
\$1–\$4,999	18.0	16.1	17.0
\$5,000–\$9,999	18.9	18.5	18.7
\$10,000–\$14,999	18.4	16.9	17.6
\$15,000–\$19,999	14.1	14.4	14.3
\$20,000–\$24,999	10.3	12.0	11.2
\$25,000–\$29,999	7.8	8.5	8.2
\$30,000 or more	8.1	9.0	8.5
Payment for rent and utilities (%)			
\$0	2.1	1.7	1.9
\$1–\$99	5.6	5.4	5.5
\$100–\$199	10.4	8.7	9.5
\$200–\$299	11.1	11.4	11.2
\$300–\$399	13.1	12.9	13.0
\$400–\$499	11.1	10.0	10.5
\$500–\$599	10.4	11.2	10.8
\$600–\$699	7.6	8.1	7.8
\$700–\$799	7.0	7.6	7.3
\$800–\$899	5.2	5.9	5.5

Characteristic	FSS Group	Control Group	Total	
\$900–\$999	2.9	3.6	3.3	
\$1,000 or more	13.7	13.5	13.6	
During the past 12 months, household experienced at least one financial hardship (%)	57.7	60.4	59.0	
Not able to buy prescription drug	13.0	13.6	13.3	
Not able to buy food	26.2	31.6	28.9	***
Not able to pay telephone bill	28.7	27.8	28.2	
Not able to pay rent	17.9	19.1	18.5	
Not able to pay utility bill	43.5	43.3	43.4	
Sample size	1,285	1,271	2,556	

FSS = Family Self-Sufficiency. SNAP = Supplemental Nutrition Assistance Program. TANF = Temporary Assistance for Needy Families.

^a Maximum response option for number of adults in a household is four.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by research group. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than total for questions that allow more than one response.

Source: MDRC calculations from Baseline Information Form data

Exhibit A.2. Baseline Characteristics of Heads of Households in the FSS Impact Sample, by Research Group

Characteristic	FSS Group	Control Group	Total	
<u>Sample member characteristics</u>				
Female (%)	91.4	89.8	90.6	
Age (%)				
19–24 years	1.7	2.7	2.2	
25–34 years	34.0	33.8	33.9	
35–44 years	36.6	34.5	35.6	
45–59 years	26.7	27.9	27.3	
60–61 years	1.0	1.2	1.1	
Average age (years)	39	39	39	
Marital status (%)				
Married, living with spouse	8.3	7.2	7.7	
Married, not living with spouse	7.1	6.6	6.8	
Cohabiting	1.5	1.3	1.4	
Single, widowed, or divorced	83.1	84.9	84.0	
Citizenship status (%)				
U.S.-born	87.6	87.8	87.7	
Naturalized	8.0	8.1	8.1	
Noncitizen	4.4	4.0	4.2	
Race/ethnicity (%) ^a				
Black, non-Hispanic/Latino	72.2	74.4	73.3	
Hispanic/Latino	15.6	16.1	15.8	
White, non-Hispanic/Latino	7.1	6.2	6.7	
Native American	0.3	0.3	0.3	
Asian	2.7	1.3	2.0	
Other	0.4	0.3	0.4	
Multiracial	1.7	1.4	1.6	
Education				
Highest degree or diploma earned (%)				
GED certificate	3.5	2.5	3.0	
High school diploma	10.5	10.8	10.6	
Some college or received technical/trade license	53.9	56.2	55.0	
Associate's or 2-year college degree	11.3	10.2	10.8	
4-year college or graduate degree	7.1	5.9	6.5	
None of the above	13.6	14.4	14.0	
Has trade license or training certificate (%)	47.1	47.0	47.0	
Employment status				
Currently employed (%)	55.6	56.9	56.2	
Regular job	47.7	49.2	48.4	***
Self-employed	3.4	5.1	4.2	***
Temporary or seasonal job	4.5	2.5	3.5	***
Currently working 35 hours or more per week (%)	29.1	32.0	30.5	
Average hours worked per week	17.9	18.8	18.3	
Average weekly earnings (\$)	205	221	213	

Characteristic	FSS Group	Control Group	Total
<u>Barriers to employment</u>			
Has any problem that limits work (%)	41.6	40.8	41.2
Physical health	18.4	19.3	18.8
Emotional or mental health	7.6	7.7	7.6
Childcare access or cost	18.5	17.2	17.8
Need to care for disabled household member	7.9	6.7	7.3
Previously convicted of a felony	6.7	6.0	6.3
Limited English-speaking ability (%)	3.6	4.1	3.8
Does not have access to transportation for employment (%)			
No public transportation access	16.5	19.1	17.8 *
No automobile access	18.5	17.9	18.2
<u>FSS program</u>			
Heard of escrow before random assignment (%)	43.9	44.2	44.0
Interest in FSS services related to (%)			
Job-related services	70.4	70.6	70.5
Social services	32.2	32.7	32.4
Financial services	95.4	95.5	95.5
Sample size	1,285	1,271	2,556

FSS = Family Self-Sufficiency. GED = General Educational Development.

^a Chi-square test may not be valid due to small cell sizes.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by research group. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent for questions that allow more than one response.

Source: MDRC calculations from Baseline Information Form data

Exhibit A.3. Staffing, Escrow, and Graduation Policies, 2020

Housing Agency	Number with FSS Caseload	Case Management Staffing			Escrow		Employment Hours	Graduation Requirements ^a		Limitations on Revising Goals
		Housing Choice Voucher Responsibilities	Homeownership Responsibilities	At Least One Annual In-Person Meeting Expected	Interim Escrow Disbursement Permitted	Withdrawal Limits		Employment Earnings	Employment Stability	
Housing Agency #1	5 or more	No	Yes	Yes	Yes	Up to 50% of the balance	30 hours per week	—	6 months	1 year (final goal); 6 months (interim goals)
Housing Agency #2	1–4	Yes	No	Yes	Yes	Up to 25% of the balance	—	—	—	6 months
Housing Agency #3	1–4	No	No	Yes	Yes	Up to 50% of the balance	—	—	—	—
Housing Agency #4	1–4	No	Yes	Yes	No	N/A	—	—	—	6 months
Housing Agency #5	5 or more	Yes	No	No	Yes	None	—	—	—	—
Housing Agency #6	5 or more	Yes	Yes	No	Yes	Up to 50% of the balance	—	—	—	1 year
Housing Agency #7	1–4	No	Yes	Yes	Yes	Up to 50% of the balance	30 hours per week (exceptions made on case-by-case basis)	Earnings must be deemed "reasonable" by Housing Agency staff	—	—
Housing Agency #8	1–4	Yes	No	Yes	No	N/A	—	—	—	2 years but reviewed on a case-by-case

		Case Management Staffing			Escrow			Graduation Requirements ^a		
Housing Agency #9	1-4	No	Yes	Yes	Yes	For enrollees after March 1, 2018, a maximum of \$5,000 during FSS contract	—	—	—	6 months
Housing Agency #10	5 or more	Yes	No	Yes	Yes	Up to 25% of the balance	32 hours per week	—	12 months	12 months
Housing Agency #11	1-4	No	Yes	Yes	Yes	Cannot withdraw until after 12 months of accruing escrow and maintaining employment	30 hours per week	A "decent" job (such as a job with opportunity for growth)	12 months	2.5 years
Housing Agency #12	1-4	Yes	Yes	Yes	Yes	Less than 100% of the balance	—	More than minimum wage	—	—
Housing Agency #13	1-4	No	No	Yes	Yes	Up to 30% of the balance	—	—	—	3 months
Housing Agency #14	1-4	No	Yes	Yes	Yes	Enrolled for at least 1 year; Up to 25% of the balance (annually); car repairs require 20% contribution by participant	30 hours per week	—	6 months	—

		Case Management Staffing			Escrow			Graduation Requirements ^a		
		Yes	Yes		Yes	Yes				
Housing Agency #15	1–4	Yes	Yes	Yes	Yes	Up to two disbursements within a 12-month period; Up to 30% of the balance (exceptions for home purchase and education)	—	—	—	—
Housing Agency #16	5 or more	No	Yes	Yes	Yes	Up to 50% of the balance	—	—	—	2 months
Housing Agency #17	1–4	Yes	Yes	Yes	Yes	Up to 50% of the balance	30 hours per week	—	—	6 months
Housing Agency #18	1–4	No	Yes	Yes	No	N/A	Full time	If employed at start, must increase income	—	1 year

FSS = Family Self-Sufficiency. N/A = not applicable. TANF = Temporary Assistance for Needy Families.

^a Unless otherwise noted, all requirements are as of graduation. No receipt of TANF benefits for 12 months is a requirement at all sites.

^b Some sites have different employment requirements for disabled and/or senior clients. These are not included in the exhibit.

Source: Information collected during MDRC interviews with FSS administrators and case managers in fourth quarter 2015, second quarter 2018, and second quarter 2020

Exhibit A.4. Methodology for Creating Site Clusters

Site clusters were created from a variety of source data, described in exhibit 49. Some site clusters were created from a single measure, whereas others were created from two or three measures. Measures were created using the following procedure:

- Calculate site-level mean values for each source measure.
- Calculate a cross-site mean (“mean of means”) for each source measure.
- Calculate the cross-site standard deviation for each source measure.
- Calculate site-level *z-scores* for each source measure. For each site (PHA), subtract the site-level mean from the cross-site mean. Then, divide the difference by the cross-site standard deviation.
- For site clusters created from two or three source measures, sum the *z-scores* and then divide by the number of component measures to create an average composite score.
- Group sites with similar scores into high, medium, or low categories. Sites with an average *z-score* value above 0.5 were grouped in the high category, whereas sites with an average *z-score* below -0.5 were grouped in the low category. The remaining sites with average *z-scores* between -0.5 and +0.5 were grouped in the medium sites.

PHA = public housing agency.

Exhibit A.5. Impacts on Selected Indicators of Service Use and Credential Attainment by Selected Baseline Characteristics, FSS Long-Term Followup Survey Respondent Sample

Outcome (%)	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
<u>Used any services in past 12 months</u>						
Employment status						
Not employed	33.6	41.6	- 8.0	0.145	180	165
Employed part-time	39.5	40.0	- 0.5	0.954	105	99
Employed full-time	43.1	42.1	1.0	0.890	115	122
Educational attainment						
No degree or credential	36.0	32.1	4.0	0.714	58	69
High school degree or GED	29.5	40.2	- 10.8	0.214	93	96
Some college	39.8	42.6	- 2.9	0.626	164	166
2-year college degree or higher	42.6	54.2	- 11.5	0.358	85	55
Total household income						
\$0-\$10,000	38.9	43.0	- 4.1	0.492	177	156
\$10,001-\$20,000	39.2	34.6	4.6	0.560	107	110
More than \$20,000	39.1	40.4	- 1.3	0.850	115	119
Reported barrier to employment						
Yes	33.8	41.3	- 7.5	0.220	159	165
No	43.0	38.6	4.5	0.354	241	221
Disability status						
Received SSI/SSDI	23.6	41.5	- 17.9	0.333	52	50
Did not receive SSI/SSDI	40.1	41.2	- 1.1	0.779	348	336
Percentage of rent and utilities expenses paid by household						
0-25	35.8	44.1	- 8.3	0.136	184	173
25.01-50	38.8	37.2	1.6	0.824	133	122
More than 50	44.1	37.6	6.5	0.489	82	90
Rent burden ^a						
Lower	38.8	44.0	- 5.2	0.358	186	177
Higher	36.2	38.2	- 2.0	0.733	171	176

Outcome (%)	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
<u>Used any services since random assignment</u>						
Employment status						
Not employed	85.0	80.8	4.1	0.350	182	165
Employed part-time	89.3	84.3	5.0	0.379	106	100
Employed full-time	91.3	77.3	14.0 ***	0.009	115	123
Educational attainment						
No degree or credential	87.9	65.8	22.1 *	0.057	61	69
High school degree or GED	84.3	76.7	7.6	0.315	93	96
Some college	89.3	85.4	3.9	0.333	164	168
2-year college degree or higher	89.8	90.3	- 0.4	0.952	85	55
Total household income						
\$0-\$10,000	88.5	83.7	4.8	0.247	178	156
\$10,001-\$20,000	89.9	75.7	14.1 **	0.019	109	111
More than \$20,000	87.6	78.5	9.1 *	0.091	115	120
Reported barrier to employment						
Yes	83.2	83.1	0.0	0.993	159	167
No	90.7	79.1	11.6 ***	0.001	244	221
Disability status						
Received SSI/SSDI	91.6	80.7	11.0	0.382	52	50
Did not receive SSI/SSDI	87.8	80.2	7.6 ***	0.009	351	338
Percentage of rent and utilities expenses paid by household						
0-25	88.2	82.1	6.0	0.137	186	173
25.01-50	85.5	77.6	7.8	0.180	134	123
More than 50	92.7	80.2	12.5 *	0.053	82	91
Rent burden ^a						
Lower	86.6	76.1	10.5 **	0.017	187	179
Higher	88.9	87.7	1.2	0.763	173	176
<u>Participated in job search activity since random assignment</u>						
Employment status						

Outcome (%)	FSS Group	Control Group	Difference (Impact)		P-Value	Sample Size	
						FSS Group	Control Group
Not employed	63.9	49.6	14.3	**	0.011	182	165
Employed part-time	67.3	50.1	17.2	**	0.044	104	100
Employed full-time	59.7	45.8	13.9	**	0.042	115	123
Educational attainment							
No degree or credential	66.0	41.1	24.9	*	0.058	60	69
High school degree or GED	64.4	39.7	24.7	***	0.008	93	96
Some college	62.0	54.2	7.8		0.203	163	168
2-year college degree or higher	60.5	61.1	- 0.6		0.959	85	55
Total household income							
\$0-\$10,000	67.7	54.9	12.8	**	0.028	178	156
\$10,001-\$20,000	71.4	44.3	27.1	***	0.000	109	111
More than \$20,000	55.8	38.3	17.4	**	0.020	113	120
Reported barrier to employment							
Yes	61.3	52.0	9.4		0.135	157	167
No	64.6	46.3	18.3	***	0.000	244	221
Disability status							
Received SSI/SSDI	58.6	42.2	16.4		0.292	51	50
Did not receive SSI/SSDI	64.4	49.3	15.1	***	0.000	350	338
Percentage of rent and utilities expenses paid by household							
0-25	67.1	57.3	9.8	*	0.085	186	173
25.01-50	64.3	45.2	19.1	**	0.012	133	123
More than 50	51.6	38.7	13.0		0.184	81	91
Rent burden ^a							
Lower	63.7	50.6	13.1	**	0.024	186	179
Higher	62.1	49.0	13.0	**	0.029	172	176
<u>Participated in financial management training or counseling since random assignment</u>							
Employment status							
Not employed	52.7	36.4	16.2	***	0.005	181	164

Outcome (%)	FSS Group	Control Group	Difference (Impact)		P-Value	Sample Size	
						FSS Group	Control Group
Employed part-time	63.3	32.9	30.4	***	0.000	106	100
Employed full-time	67.1	40.2	26.9	***	0.000	114	123
Educational attainment							
No degree or credential	57.7	31.5	26.2	**	0.020	60	68
High school degree or GED	57.2	35.2	22.0	**	0.013	93	96
Some college	56.5	36.2	20.3	***	0.001	163	168
2-year college degree or higher	62.5	58.0	4.4		0.705	85	55
Total household income							
\$0–\$10,000	57.5	35.2	22.3	***	0.000	178	155
\$10,001–\$20,000	69.9	33.1	36.8	***	0.000	109	111
More than \$20,000	54.7	39.3	15.4	**	0.028	113	120
Reported barrier to employment							
Yes	56.1	39.1	17.0	***	0.007	157	166
No	63.2	33.4	29.8	***	0.000	244	221
Disability status							
Received SSI/SSDI	67.8	45.5	22.4		0.275	52	50
Did not receive SSI/SSDI	58.1	35.6	22.5	***	0.000	349	337
Percentage of rent and utilities expenses paid by household							
0–25	57.1	34.8	22.3	***	0.000	186	172
25.01–50	66.9	35.8	31.2	***	0.000	133	123
More than 50	51.5	42.1	9.4		0.304	81	91
Rent burden ^a							
Lower	57.6	33.5	24.1	***	0.000	186	179
Higher	59.0	41.2	17.7	***	0.003	172	176
Participated in education or training activity since random assignment							
Employment status							
Not employed	48.6	45.2	3.3		0.555	182	165
Employed part-time	58.2	46.4	11.8		0.129	106	100
Employed full-time	58.2	43.9	14.3	*	0.052	115	123

Outcome (%)	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
Educational attainment						
No degree or credential	40.8	29.2	11.6	0.374	61	69
High school degree or GED	45.1	37.5	7.6	0.403	93	96
Some college	56.6	53.1	3.6	0.554	164	168
2-year college degree or higher	64.2	59.0	5.1	0.645	85	55
Total household income						
\$0–\$10,000	52.6	49.0	3.6	0.539	178	156
\$10,001–\$20,000	56.0	40.5	15.4 *	0.058	109	111
More than \$20,000	52.7	44.5	8.3	0.243	115	120
Reported barrier to employment						
Yes	48.5	42.5	6.0	0.329	159	167
No	58.0	46.4	11.5 **	0.017	244	221
Disability status						
Did not receive SSI/SSDI	54.2	46.1	8.1 **	0.035	351	338
Received SSI/SSDI	55.7	34.1	21.7	0.226	52	50
Percentage of rent and utilities expenses paid by household						
0–25	54.7	49.9	4.7	0.398	186	173
25.01–50	48.7	38.8	10.0	0.166	134	123
More than 50	58.2	45.3	12.9	0.161	82	91
Rent burden ^a						
Lower	51.5	44.0	7.6	0.186	187	179
Higher	54.5	45.9	8.6	0.132	173	176
<u>Attained an education or training credential since random assignment</u>						
Employment status						
Not employed	36.2	32.8	3.4	0.522	182	165
Employed part-time	37.5	41.3	– 3.7	0.627	106	100
Employed full-time	30.8	28.1	2.7	0.660	115	123
Educational attainment						

Outcome (%)	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
No degree or credential	25.9	13.3	12.6	0.201	61	69
High school degree or GED	30.9	27.4	3.5	0.670	93	96
Some college	42.4	34.8	7.7	0.184	164	168
2-year college degree or higher	38.4	55.2	- 16.8	0.109	85	55
Total household income						
\$0-\$10,000	37.0	31.5	5.5	0.331	178	156
\$10,001-\$20,000	39.2	32.7	6.5	0.347	109	111
More than \$20,000	35.8	29.0	6.8	0.288	115	120
Reported barrier to employment						
Yes	30.7	27.1	3.7	0.507	159	167
No	41.1	34.7	6.4	0.164	244	221
Disability status						
Received SSI/SSDI	23.8	37.3	-13.5	0.406	52	50
Did not receive SSI/SSDI	37.0	32.6	4.4	0.221	351	338
Percentage of rent and utilities expenses paid by household						
0-25	37.1	34.2	2.9	0.591	186	173
25.01-50	36.8	34.7	2.1	0.769	134	123
More than 50	29.4	28.5	0.9	0.913	82	91
Rent burden ^a						
Lower	35.1	33.8	1.3	0.810	187	179
Higher	34.7	33.0	1.7	0.754	173	176
Sample size (total =791)	403	388				

FSS = Family Self-Sufficiency. GED = General Educational Development. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income.

^a Based on HUD Housing Choice Voucher program regulations, households described as having a "lower rent burden" did not have to pay more than required out-of-pocket expenses for rent and utilities in month 1 (the month of random assignment) because their gross rent was less than or equal to the area payment standard (representing the maximum housing subsidy allowed) and because the household was paying less than or equal to 30 percent of their adjusted monthly income for rent and utilities (representing the expected percentage of household income to be paid for rent and utilities). In contrast, households described as having a "higher rent burden" paid more than required out-of-pocket expenses for rent and utilities because their gross rent was higher than the area payment standard and because the household was paying more than 30 percent of

their adjusted monthly income for rent and utilities. Not shown in exhibit: Results for 76 respondents (about 10 percent) who had a combination of "lower" and "higher" rent burden in month 1.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS Long-Term Followup respondent sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, were ages 18 to 61 at the time of random assignment, and had responded to the FSS Long-Term Followup Survey. Sample sizes for specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to responses to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences (represented by †) in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; responses to the FSS 18-Month, 36-Month, and Long-Term Followup Surveys

Appendix B

Exhibit B.1. Associations Between Graduation Outcomes and Baseline Characteristics of the Family Self-Sufficiency Group, FSS Impact Sample

Characteristic		Odds Ratio Estimate		Odds Ratio Confidence Interval	
				Lower Boundary	Upper Boundary
Graduate Rather than Exit Without Graduating					
<i>Positive Association</i>					
2-year degree or higher	+++	6.401	***	3.904	10.497
Female	+++	2.691	***	1.455	4.977
Some college or received technical/trade license	+++	2.379	***	1.524	3.714
High school diploma or GED	+++	2.146	***	1.344	3.426
One child in household	++	1.934	**	1.232	3.036
Debt \$1–\$999	++	1.883	**	1.152	3.079
Employed 7–11 months in year prior to enrollment	++	1.790	*	1.086	2.952
Employed at enrollment	++	1.615	*	1.049	2.487
Age 35–44	++	1.568	*	1.057	2.324
Has a bank account	+	1.470	**	1.069	2.021
<i>Negative Association</i>					
Receives SSI/SSDI	--	0.375	***	0.219	0.642
Head of household income: \$25,001–\$30,000	--	0.392	**	0.195	0.791
Head of household income: \$35,501–\$70,000	--	0.406	*	0.177	0.931
Head of household income: \$1–\$5,000	--	0.436	*	0.216	0.882
Head of household income: \$15,001–\$17,500	--	0.461	*	0.234	0.909
Receives TANF or general assistance at enrollment	-	0.526	**	0.331	0.835
Less than 4 years in HCV	-	0.679	*	0.486	0.947
Has any problem that limits work	-	0.723	*	0.539	0.970

Sample size (n = 1,192)

Graduate with Disbursement Greater than \$5,000 Rather than Exit Without Graduating

Positive Association

2-year degree or higher	+++	8.503	***	4.545	15.906
Employed 7–11 months in year prior to enrollment	+++	2.831	***	1.541	5.201
One child in household	+++	2.788	***	1.535	5.061
Some college or received technical/trade license	+++	2.572	***	1.443	4.582
Female	+++	2.435	*	1.122	5.281
High school diploma or GED	+++	2.227	**	1.210	4.100
Debt \$1–\$999	+++	2.107	**	1.153	3.850

Characteristic		Odds Ratio Estimate		Odds Ratio Confidence Interval	
				Lower Boundary	Upper Boundary
Two children in household	+++	2.004	*	1.051	3.822
Employed at enrollment	++	1.815	*	1.084	3.037
Enrolled in FSS for help with employment	++	1.740	**	1.116	2.714
Randomly assigned in third quarter of enrollment	++	1.695	*	1.085	2.648
Receives food stamps	++	1.618	*	1.023	2.560
Child aged 0–5 in household	++	1.560	*	1.044	2.331
<i>Negative Association</i>					
Head of household income: \$20,001–\$22,500	---	0.114	**	0.019	0.687
Head of household income: \$25,001–\$30,000	---	0.226	**	0.085	0.605
Head of household income: \$35,501–\$70,000	---	0.230	**	0.070	0.754
Head of household income: \$1–\$5,000	--	0.263	**	0.111	0.624
Head of household income: \$15,001–\$17,500	--	0.294	**	0.121	0.710
Receives SSI/SSDI	--	0.342	**	0.160	0.731
Receives TANF or general assistance at enrollment	--	0.474	**	0.274	0.821
One hardship in year prior to enrollment	-	0.503	**	0.300	0.843
Employed full time	-	0.525	**	0.315	0.874
Less than 4 years in HCV	-	0.557	**	0.363	0.854
Has any problem that limits work	-	0.566	**	0.388	0.824

Sample size (n = 1,091)

Graduate Rather than Exit with a Balance

Positive Association

2-year degree or higher	+++	5.852	***	3.379	10.134
Female	+++	2.708	**	1.335	5.493
Debt \$1–\$999	+++	2.458	***	1.398	4.322
Some college or received technical/trade license	+++	2.128	**	1.311	3.455
One child in household	++	1.898	**	1.131	3.186
High school diploma or GED	++	1.803	*	1.089	2.986

Negative Association

Head of household income: \$15,001–\$17,500	--	0.350	**	0.164	0.749
Head of household income: \$1–\$5,000	--	0.376	**	0.178	0.795
Receives TANF or general assistance at enrollment	--	0.429	***	0.259	0.710
Head of household income: \$10,001–\$12,500	--	0.434	*	0.206	0.911

Characteristic		Odds Ratio Confidence Interval			
		Odds Ratio Estimate	Lower Boundary	Upper Boundary	
Receives SSI/SSDI	--	0.453	**	0.247	0.833
Sample size (n = 758)					
Graduate Rather than Exit without a Balance					
<i>Positive Association</i>					
2-year degree or higher	+++	8.333	***	4.512	15.390
Some college or received technical/trade license	+++	3.146	***	1.813	5.457
High school diploma or GED	+++	2.736	***	1.537	4.870
Female	+++	2.573	**	1.274	5.198
Married or cohabitating	+++	2.481	**	1.304	4.720
Employed 7–11 months in year prior to enrollment	+++	2.479	**	1.304	4.714
Age 18–34	+++	2.185	**	1.321	3.613
Employed at enrollment	+++	2.103	**	1.209	3.659
One child in household	+++	2.096	**	1.229	3.576
Age 35–44	++	1.810	**	1.141	2.869
Has a bank account	++	1.698	**	1.133	2.545
<i>Negative Association</i>					
Head of household income: \$25,001–\$30,000	--	0.265	***	0.120	0.587
Receives SSI/SSDI	--	0.274	***	0.147	0.509
Head of household income: \$35,501–\$70,000	--	0.298	**	0.115	0.768
Less than 4 years in HCV	-	0.570	**	0.374	0.869
Has any problem that limits work	-	0.586	**	0.408	0.840
Employed full time	-	0.607	*	0.372	0.989
Has trade license or training certificate	-	0.697	*	0.492	0.988
Sample size (n=696)					

FSS = Family Self-Sufficiency. GED = General Educational Development. HCV = Housing Choice Voucher. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income. TANF = Temporary Assistance for Needy Families.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Effects were estimated with a separate logistic regression for each of the four dependent variables.

Sources: MDRC calculations from Baseline Information Form data; housing agency administrative data

**Exhibit B.2. Baseline Characteristics of the Family Self-Sufficiency Group by FSS and HCV Program Status, FSS Impact Sample
Enrolled in Housing Choice Voucher Program**

Characteristic	Exited FSS and HCV	Exited FSS, Still Enrolled in HCV	Currently Enrolled in FSS	Graduated with Disbursement of \$5,000 or Less	Graduated with Disbursement of \$5,001 or More	Total	
Household characteristics							
Average number of household members ^a	3.3	3.2	3.0	3.3	3.5	3.2	
Households with more than 1 adult (%)	35.8	34.4	31.5	37.4	37.6	35.3	
Average number of children in household	1.8	1.7	1.7	1.8	2.0	1.8	
Number of children (%)							***
No children	22.8	27.2	30.1	15.8	10.6	22.8	
1 child	22.8	22.4	17.2	31.7	32.9	24.2	
2 children	25.5	20.8	29.0	23.8	26.7	24.1	
3 children or more	28.9	29.6	23.7	28.7	29.8	28.9	
For households with children, age of youngest child (%)							
0–5 years	40.1	39.6	43.1	34.9	45.5	40.5	
6–12 years	41.5	44.1	38.5	47.0	37.8	42.1	
13–17 years	18.4	16.3	18.5	18.1	16.8	17.4	
Primary language spoken at home is English (%)	94.1	90.3	89.1	92.0	91.9	91.9	
Receives TANF (%)	14.0	17.7	28.6	8.0	17.5	16.3	***
Receives food stamps/SNAP (%)	67.5	73.5	78.5	64.4	75.8	71.2	**
Length of time receiving Section 8 Housing Choice Voucher (%)							**
Less than 4 years	33.2	32.5	37.4	30.0	26.9	32.2	
4–6.99 years	24.7	18.1	20.9	31.0	19.4	21.9	
7 years or more	42.1	49.3	41.8	39.0	53.8	45.9	

Enrolled in Housing Choice Voucher Program

Characteristic	Exited FSS and HCV	Exited FSS, Still Enrolled in HCV	Currently Enrolled in FSS	Graduated with Disbursement of \$5,000 or Less	Graduated with Disbursement of \$5,001 or More	Total	
Total annual household income (%)							
Less than \$10,000	40.6	45.4	40.0	23.0	43.9	41.3	
\$10,000–\$19,999	30.5	33.0	35.6	34.0	34.4	32.5	
\$20,000 or more	29.0	21.6	24.4	43.0	21.7	26.2	
Payment for rent and utilities (%)							**
Less than \$400	40.9	43.9	45.7	29.3	47.5	42.2	
\$400–\$599	20.4	21.6	25.0	19.2	23.1	21.4	
\$600 or more	38.7	34.4	29.3	51.5	29.4	36.3	
During the past 12 months, household experienced at least one financial hardship (%)	58.2	58.6	53.8	56.4	56.5	57.7	
Not able to buy prescription drug	11.2	14.1	13.0	13.0	15.0	13.0	
Not able to buy food	23.7	30.0	16.3	28.0	26.9	26.2	**
Not able to pay telephone bill	28.0	27.8	28.3	25.0	35.6	28.7	
Not able to pay rent	19.1	17.2	15.2	17.0	18.8	17.9	
Not able to pay utility bill	43.6	44.6	43.5	36.0	45.0	43.5	
<u>Sample member characteristics</u>							
Female (%)	89.9	90.1	94.6	95.0	95.0	91.4	*
Age (%)							***
19–34 years	37.8	31.4	30.1	42.6	41.0	35.7	
35–44 years	37.3	32.7	43.0	40.6	39.1	36.6	
45–61 years	24.9	36.0	26.9	16.8	19.9	27.7	
Average age (years)	38.6	40.8	39.2	36.6	37.3	39.1	***
Married, living with spouse, or cohabitating (%)	10.3	9.4	5.4	12.9	9.9	9.8	

Enrolled in Housing Choice Voucher Program

Characteristic	Exited FSS and HCV	Exited FSS, Still Enrolled in HCV	Currently Enrolled in FSS	Graduated with Disbursement of \$5,000 or Less	Graduated with Disbursement of \$5,001 or More	Total	
<u>Race/ethnicity (%)</u>							
Black, non-Hispanic/Latino	73.2	71.5	73.1	75.2	68.9	72.2	
Hispanic/Latino	15.6	14.3	18.3	13.9	18.6	15.6	
Other	11.2	14.3	8.6	10.9	12.4	12.2	
<u>Education (%)</u>							
No high school diploma or GED	13.6	18.0	9.8	7.1	7.5	13.6	***
High school diploma or GED	12.9	17.1	10.9	11.1	12.4	14.1	
Some college or received technical/trade license	56.4	53.5	59.8	52.5	45.3	53.9	
2-year degree or higher	17.2	11.4	19.6	29.3	34.8	18.4	
Has trade license or training certificate	48.7	45.2	47.3	48.5	46.6	47.1	
<u>Employment status</u>							
Currently employed (%)	55.9	49.9	52.7	79.8	57.5	55.6	***
Current employment type (%)							***
Regular job	49.2	41.9	46.2	69.7	47.2	47.7	
Self-employed	2.5	4.6	0.0	5.1	3.1	3.4	
Temporary or seasonal job	4.2	3.3	6.5	5.1	6.9	4.5	
Currently working 1 to 34 hours per week (%)	25.3	24.3	24.7	29.3	33.8	26.3	
Currently working 35 hours or more per week (%)	30.6	25.2	28.0	50.5	23.1	29.1	***
Average hours worked per week	18.4	15.8	17.1	27.6	16.6	17.9	***
Average weekly earnings (\$)	219	175	159	342	192	205	***

Enrolled in Housing Choice Voucher Program

Characteristic	Exited FSS and HCV	Exited FSS, Still Enrolled in HCV	Currently Enrolled in FSS	Graduated with Disbursement of \$5,000 or Less	Graduated with Disbursement of \$5,001 or More	Total	
<u>Barriers to employment (%)</u>							
Has any problem that limits work	41.1	48.5	26.9	36.6	34.8	41.6	***
Physical, emotional, or mental health	21.2	28.0	11.8	11.0	10.1	20.8	***
Childcare access or cost	17.3	19.5	12.9	20.0	21.3	18.5	
Other	15.5	16.0	10.9	12.0	8.7	14.2	
Receives SSI or SSDI benefits	14.8	18.6	7.5	7.9	4.3	13.8	***
Limited English-speaking ability	2.7	4.6	5.4	0.0	4.3	3.6	
No access to public transportation	83.0	80.9	89.1	86.0	87.5	83.5	
No access to an automobile	81.6	77.3	82.8	88.0	88.8	81.5	***
<u>FSS program (%)</u>							
Heard of escrow before random assignment	45.5	40.4	35.5	51.0	49.7	43.9	**
Interest in FSS services related to							
Job-related services	68.1	69.1	88.2	56.0	79.5	70.4	***
Social services	30.2	33.6	25.8	24.0	42.9	32.2	***
Financial services	97.3	93.9	97.8	95.0	93.2	95.4	*
Sample size	474	456	93	101	161	1,285	

FSS = Family Self-Sufficiency. GED = General Educational Development. HCV = Housing Choice Voucher. SNAP = Supplemental Nutrition Assistance Program. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income. TANF = Temporary Assistance for Needy Families.

^a Maximum response option for number of adults in a household is four.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific measures may vary because of missing values.

Rounding may cause slight discrepancies in calculating sums. Detail may sum to more than total for questions that allow more than one response. A chi-square test for categorical variables was run to determine whether there is a statistically significant difference in the distribution of related characteristics by FSS and HCV program eligibility status.

Sources: MDRC calculations from Baseline Information Form data; housing agency administrative data

Appendix C

Exhibit C.1. Impacts on Employment and Earnings by Quarter, FSS Impact Sample

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
<u>Not employed at random assignment</u>				
Quarter 2	25.9	30.2	- 4.3 *	0.079
Quarter 3	33.9	33.2	0.7	0.788
Quarter 4	38.4	35.6	2.7	0.289
Quarter 5	40.8	36.8	4.0	0.126
Quarter 6	42.9	40.2	2.6	0.311
Quarter 7	45.5	44.9	0.5	0.848
Quarter 8	45.0	43.7	1.3	0.628
Quarter 9	44.0	42.8	1.2	0.649
Quarter 10	45.3	45.5	- 0.2	0.932
Quarter 11	46.0	46.0	- 0.1	0.981
Quarter 12	48.0	47.8	0.2	0.939
Quarter 13	47.9	47.1	0.9	0.755
Quarter 14	47.8	47.2	0.5	0.848
Quarter 15	49.6	48.2	1.3	0.623
Quarter 16	47.3	47.9	- 0.6	0.838
Quarter 17	48.3	48.6	- 0.3	0.910
Quarter 18	47.8	49.9	- 2.0	0.461
Quarter 19	46.4	49.2	- 2.7	0.327
Quarter 20	46.8	48.8	- 2.1	0.454
Quarter 21	48.5	47.1	1.4	0.620
Quarter 22	48.0	48.1	- 0.1	0.966
Quarter 23	49.4	48.1	1.3	0.643
Quarter 24	47.7	47.5	0.2	0.948
Quarter 25	44.6	44.6	0.0	0.989
<u>Employed part-time (1–34 hours) at random assignment</u>				
Quarter 2	81.8	80.8	1.1	0.688
Quarter 3	78.4	81.2	- 2.8	0.344
Quarter 4	79.7	77.6	2.2	0.489
Quarter 5	81.2	77.0	4.2	0.170
Quarter 6	77.3	74.1	3.2	0.326
Quarter 7	78.2	75.4	2.9	0.376
Quarter 8	75.9	77.5	- 1.6	0.622
Quarter 9	77.3	75.7	1.6	0.621
Quarter 10	77.1	74.1	3.0	0.374

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
Quarter 11	78.8	73.5	5.3	0.103
Quarter 12	75.7	74.9	0.9	0.789
Quarter 13	74.5	71.1	3.4	0.320
Quarter 14	73.4	72.3	1.1	0.744
Quarter 15	72.5	71.9	0.6	0.865
Quarter 16	73.1	74.2	- 1.1	0.741
Quarter 17	73.4	73.2	0.2	0.943
Quarter 18	74.6	73.5	1.0	0.765
Quarter 19	75.3	75.6	- 0.3	0.920
Quarter 20	77.1	73.1	4.0	0.237
Quarter 21	77.3	73.9	3.4	0.312
Quarter 22	74.7	75.4	- 0.7	0.842
Quarter 23	73.6	73.9	- 0.3	0.936
Quarter 24	70.7	72.8	- 2.1	0.553
Quarter 25	69.0	68.3	0.7	0.848
<u>Employed full-time (35 hours or more) at random assignment</u>				
Quarter 2	87.7	88.2	- 0.5	0.795
Quarter 3	84.9	86.6	- 1.8	0.412
Quarter 4	84.1	86.3	- 2.2	0.320
Quarter 5	82.5	84.8	- 2.3	0.345
Quarter 6	81.6	84.0	- 2.4	0.351
Quarter 7	82.0	84.9	- 2.9	0.254
Quarter 8	80.7	84.3	- 3.7	0.155
Quarter 9	78.7	84.4	- 5.6 **	0.035
Quarter 10	80.4	83.3	- 2.9	0.271
Quarter 11	81.2	81.8	- 0.6	0.824
Quarter 12	81.6	80.0	1.6	0.568
Quarter 13	82.0	80.4	1.6	0.566
Quarter 14	81.9	80.9	1.0	0.698
Quarter 15	82.3	81.8	0.6	0.828
Quarter 16	80.7	81.3	- 0.6	0.820
Quarter 17	81.1	79.4	1.8	0.527
Quarter 18	82.6	78.3	4.2	0.116
Quarter 19	80.6	77.7	2.9	0.318
Quarter 20	81.7	79.4	2.3	0.407
Quarter 21	79.2	81.4	- 2.3	0.414
Quarter 22	78.6	80.3	- 1.7	0.551
Quarter 23	77.9	78.1	- 0.2	0.940
Quarter 24	77.9	76.4	1.6	0.607

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
Quarter 25	73.8	76.2	- 2.4	0.441
<u>Total Impact Sample</u>				
Quarter 2	58.8	60.8	- 2.0	0.154
Quarter 3	60.7	61.7	- 1.0	0.510
Quarter 4	62.9	61.7	1.2	0.421
Quarter 5	63.9	61.5	2.4	0.122
Quarter 6	63.4	62.1	1.3	0.410
Quarter 7	65.1	64.7	0.4	0.799
Quarter 8	63.9	64.5	- 0.5	0.734
Quarter 9	63.4	63.5	- 0.1	0.947
Quarter 10	64.2	64.1	0.2	0.921
Quarter 11	65.1	63.8	1.3	0.439
Quarter 12	65.2	64.5	0.7	0.686
Quarter 13	65.1	63.3	1.8	0.292
Quarter 14	64.8	63.7	1.0	0.547
Quarter 15	65.4	64.4	1.0	0.541
Quarter 16	64.2	64.5	- 0.4	0.829
Quarter 17	64.9	64.0	0.8	0.624
Quarter 18	65.2	64.5	0.7	0.682
Quarter 19	64.1	64.5	- 0.4	0.822
Quarter 20	65.1	64.3	0.8	0.643
Quarter 21	65.2	64.3	0.9	0.605
Quarter 22	64.2	64.6	- 0.4	0.812
Quarter 23	64.3	63.7	0.6	0.744
Quarter 24	62.8	62.6	0.2	0.930
Quarter 25	59.6	60.4	- 0.8	0.653
<u>Total Earnings (\$)</u>				
<u>Not employed at random assignment</u>				
Quarter 2	610	730	- 120	0.189
Quarter 3	1,026	1,022	4	0.973
Quarter 4	1,195	1,205	- 10	0.936
Quarter 5	1,374	1,310	64	0.637
Quarter 6	1,585	1,544	41	0.780
Quarter 7	1,910	1,807	103	0.542
Quarter 8	1,970	1,885	85	0.615
Quarter 9	2,028	1,755	273	0.106
Quarter 10	2,183	2,039	144	0.447

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
Quarter 11	2,288	2,222	66	0.728
Quarter 12	2,386	2,325	61	0.759
Quarter 13	2,372	2,282	90	0.635
Quarter 14	2,404	2,424	- 20	0.921
Quarter 15	2,516	2,502	15	0.942
Quarter 16	2,516	2,517	0	0.998
Quarter 17	2,578	2,569	9	0.968
Quarter 18	2,623	2,690	- 67	0.763
Quarter 19	2,641	2,602	39	0.862
Quarter 20	2,722	2,744	- 22	0.924
Quarter 21	2,876	2,658	218	0.338
Quarter 22	3,026	2,754	272	0.250
Quarter 23	3,017	3,054	- 37	0.881
Quarter 24	2,925	3,048	- 123	0.620
Quarter 25	2,748	2,937	- 188	0.440
<u>Employed part-time (1–34 hours) at random assignment</u>				
Quarter 2	3,167	3,186	- 19	0.914
Quarter 3	3,241	3,133	108	0.575
Quarter 4	3,307	3,149	158	0.454
Quarter 5	3,571	3,314	257	0.253
Quarter 6	3,707	3,345	362	0.144
Quarter 7	3,512	3,689	- 177	0.473
Quarter 8	3,769	3,904	- 136	0.610
Quarter 9	3,915	3,922	- 7	0.981
Quarter 10	4,079	3,824	255	0.359
Quarter 11	4,054	3,884	170	0.541
Quarter 12	4,143	3,947	196	0.477
Quarter 13	4,106	3,804	301	0.288
Quarter 14	4,196	4,060	136	0.650
Quarter 15	4,213	4,248	- 35	0.908
Quarter 16	4,326	4,197	129	0.676
Quarter 17	4,595	4,076	519 *	0.092
Quarter 18	4,545	4,366	179	0.586
Quarter 19	4,595	4,587	7	0.982
Quarter 20	4,666	4,757	- 91	0.796
Quarter 21	4,859	4,625	234	0.487

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
Quarter 22	4,824	5,069	- 244	0.501
Quarter 23	4,663	4,936	- 273	0.445
Quarter 24	4,484	4,904	- 420	0.249
Quarter 25	4,659	4,673	- 14	0.971
<u>Employed full-time (35 hours or more) at random assignment</u>				
Quarter 2	5,639	5,696	- 57	0.768
Quarter 3	5,656	5,765	- 109	0.599
Quarter 4	5,497	5,774	- 277	0.233
Quarter 5	5,338	5,805	- 467 *	0.066
Quarter 6	5,736	5,755	- 20	0.940
Quarter 7	5,854	6,074	- 220	0.401
Quarter 8	5,637	5,936	- 300	0.268
Quarter 9	5,885	6,004	- 119	0.676
Quarter 10	5,963	6,038	- 75	0.800
Quarter 11	5,929	6,065	- 136	0.641
Quarter 12	5,963	6,215	- 251	0.426
Quarter 13	5,963	6,262	- 299	0.331
Quarter 14	6,065	6,275	- 209	0.507
Quarter 15	6,364	6,439	- 76	0.810
Quarter 16	6,299	6,479	- 180	0.586
Quarter 17	6,500	6,253	247	0.438
Quarter 18	6,703	6,483	219	0.509
Quarter 19	6,732	6,661	71	0.835
Quarter 20	6,691	6,807	- 116	0.733
Quarter 21	6,757	6,895	- 138	0.691
Quarter 22	6,849	6,771	78	0.824
Quarter 23	6,915	6,885	30	0.933
Quarter 24	6,720	6,646	74	0.845
Quarter 25	6,624	6,865	- 241	0.531
<u>Total Impact Sample</u>				
Quarter 2	2,781	2,870	- 90	0.285
Quarter 3	2,983	3,015	- 32	0.737
Quarter 4	3,041	3,090	- 49	0.636
Quarter 5	3,162	3,169	- 6	0.955
Quarter 6	3,399	3,271	128	0.275
Quarter 7	3,520	3,579	- 59	0.632
Quarter 8	3,556	3,618	- 63	0.621
Quarter 9	3,704	3,576	128	0.330

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Quarterly Employment (%)</u>				
Quarter 10	3,821	3,704	118	0.392
Quarter 11	3,846	3,813	32	0.813
Quarter 12	3,937	3,907	30	0.832
Quarter 13	3,905	3,883	22	0.879
Quarter 14	3,987	3,999	- 12	0.935
Quarter 15	4,123	4,136	- 13	0.930
Quarter 16	4,126	4,150	- 24	0.876
Quarter 17	4,283	4,072	211	0.168
Quarter 18	4,344	4,274	70	0.662
Quarter 19	4,388	4,331	57	0.722
Quarter 20	4,448	4,466	- 18	0.913
Quarter 21	4,563	4,446	117	0.476
Quarter 22	4,648	4,558	90	0.598
Quarter 23	4,608	4,706	- 97	0.577
Quarter 24	4,467	4,615	- 148	0.409
Quarter 25	4,400	4,585	- 185	0.304
Sample size (total = 2,548)	1,282	1,266		

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent.

*** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. Sources: MDRC calculations using baseline data; quarterly wage data from the National Directory of New Hires

Exhibit C.2. Regression Coefficients for Estimated Impacts on Total Earnings in Years 1 to 6, FSS Impact Sample

	Parameter Estimate	P-Value
Intercept	17,684	0.117
Assigned to FSS Group (impact)	206	0.934
<u>Covariates</u>		
<u>Sample member characteristics</u>		
Female	9,943	0.035
Age 18–34	24,655	<.0001
Age 35–44	19,152	<.0001
Married or cohabitating	2,798	0.565
Black	4,713	0.160
1 child	6,792	0.088
2 children	9,904	0.019
3 or more children	7,674	0.091
Has a child aged 5 or younger	– 1,470	0.650
<u>Education</u>		
High school diploma or GED	2,818	0.469
Some college	6,122	0.101
2-year college degree or higher	25,636	<.0001
Has trade license or training certificate	– 17	0.995
<u>Public assistance</u>		
Received SNAP/food stamps	221	0.948
Received SSI or SSDI	– 15,373	0.000
Received TANF	– 514	0.901
Received Housing Choice Voucher less than 4 years	1,350	0.662
Received Housing Choice Voucher 4–7 years	6,674	0.045
<u>Hardship and barriers to employment</u>		
Has any barrier to employment	– 13,180	<.0001
Reported 1 hardship in the year before random assignment	– 3,929	0.258
Reported 2 hardships in the year before random assignment	– 4,112	0.280
Reported 3 or more hardships in year before random assignment	– 5,836	0.091
<u>Employment</u>		
Currently employed	11,454	0.006
Currently employed full-time	6,277	0.101
Employed 1–6 months in the year before random assignment	10,877	0.011
Employed 7–11 months in the year before random assignment	827	0.875
Employed 12 months in the year before random assignment	– 2,576	0.619

	Parameter Estimate	P-Value
<u>Earnings</u>		
Employed in the quarter before random assignment	70	0.987
Employed in the second quarter before random assignment	– 2,591	0.545
Total earnings in the 2 quarters before random assignment	7	<.0001
Total earnings squared in the 2 quarters before random assignment	0	0.964
<u>Enrollment</u>		
Randomly assigned in quarter 4, 2013	– 10,157	0.195
Randomly assigned in quarter 1, 2014	– 2,410	0.507
Randomly assigned in quarter 2, 2014	3,247	0.333
Housing Authority of the City of Alameda	13,727	0.118
Orange County Housing Authority	1,584	0.863
Housing Authority of the City of Riverside	– 1,132	0.896
Housing Authority of the City of Deerfield Beach	– 7,005	0.567
Housing Authority of the City of Fort Lauderdale	– 12,567	0.200
Baltimore County Housing Office	– 15,122	0.121
Housing Opportunities Commission of Montgomery County	– 1,682	0.859
Housing Authority of Kansas City	– 5,631	0.565
Jersey City Housing Authority	– 6,934	0.520
Akron Metropolitan Housing Authority	– 19,211	0.099
Columbus Metropolitan Housing Authority	342	0.976
Lucas Metropolitan Housing Authority	– 14,925	0.221
Youngstown Metropolitan Housing Authority	– 9,561	0.412
Dallas Housing Authority	– 1,020	0.913
Fort Worth Housing Authority	– 16,901	0.121
Houston Housing Authority	– 1,866	0.837
Tarrant County Housing Assistance Office	– 18,992	0.055
Enrolled in FSS for help with employment	– 2,670	0.375
<u>Medical coverage</u>		
Public medical insurance	– 10,079	0.009
Private medical insurance	4,713	0.297
<u>Savings</u>		
Had checking or savings account	9,513	0.002
Had savings between \$1–\$500	– 2,382	0.430
Had savings greater than \$500	1,737	0.710
<u>Debt</u>		
\$1–\$1,000	27	0.995

	Parameter	
	Estimate	P-Value
\$1,001–\$5,000	5,521	0.190
\$5,001–\$10,000	7,671	0.094
\$10,001–\$20,000	7,006	0.099
\$20,001 or greater	16,172	0.000
R-square	0.493	
Sample size	2,548	

FSS = Family Self-Sufficiency. GED = General Educational Development. SNAP = Supplemental Nutrition Assistance Program. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income. TANF = Temporary Assistance for Needy Families.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. No special weights were applied to responses to adjust for differences in sample size by site.

Sources: MDRC calculations using baseline data; quarterly wage data from the National Directory of New Hires

Exhibit C.3. Unadjusted and Adjusted Impacts on Employment and Earnings in Years 1 to 6, FSS Impact Sample

Outcomes	Adjusted Impacts				Unadjusted Impacts			
	FSS Group	Control Group	Difference (Impact)	P-Value	FSS Group	Control Group	Difference (Impact)	P-Value
Ever employed (%)	87.8	86.2	1.6	0.159	87.6	86.5	1.1	0.407
Average quarterly employment rate (%)	63.8	63.4	0.4	0.720	63.4	63.8	- 0.3	0.818
Total earnings (\$)	94,040	93,834	206	0.934	92,524	95,369	- 2,846	0.407
Sample size (total = 2,548)	1,282	1,266			1,282	1,266		

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Regression-adjusted estimates used ordinary least squares, controlling for prerandom assignment characteristics of sample members. No special weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance.

Source: MDRC calculations using quarterly wage data from the National Directory of New Hires

Exhibit C.4. Total Earnings in Years 1 to 6, by Level of Exclusion for Outlier Values, FSS Impact Sample

Outcome	Sample Size	Mean	Standard Deviation	95th Percentile	99th Percentile	Maximum
<u>Earnings (\$)</u>						
Include all values	2,548	95,081	89,217	263,770	356,170	609,427
Reset values above \$25,000 to \$0	2,548	93,938	86,681	257,148	335,907	445,394
Exclude top 1 percent	2,523	92,014	83,944	253,204	317,487	356,170
Exclude top 5 percent	2,421	83,185	73,395	223,008	253,204	263,770

Note: The FSS Impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment.

Source: MDRC calculations using quarterly wage data from the National Directory of New Hires

Exhibit C.5. Impacts on Total Earnings in Years 1 to 6, by Level of Exclusion for Outlier Values, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Earnings (\$)</u>				
Include all values	94,767	95,399	- 632	0.806
Reset values above \$25,000 to \$0	94,040	93,834	206	0.934
Exclude top 1 percent	92,192	91,833	359	0.884
Exclude top 5 percent	83,801	82,556	1,245	0.582
Sample size (total = 2,548)	1,282	1,266		

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific outcomes may vary because of exclusion of outliers and missing values. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. No special weights were applied to responses to adjust for differences in sample size by site. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance.

Source: MDRC calculations using quarterly wage data from the National Directory of New Hires

Exhibit C.6. Impacts on Employment and Earnings During Years 1 to 6, by Weighting Strategy, FSS Impact Sample

Outcomes	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Unweighted</u>				
Years 1 to 6				
Ever employed (%)	87.8	86.2	1.6	0.159
Average quarterly employment rate (%)	63.8	63.4	0.4	0.720
Total earnings (\$)	94,040	93,834	206	0.934
Year 6				
Average quarterly employment rate (%)	62.7	62.8	- 0.1	0.937
Total earnings (\$)	18,124	18,464	- 340	0.592
Quarter 25				
Ever employed (%)	59.6	60.4	- 0.8	0.653
Total earnings (\$)	4,400	4,585	- 185	0.304
<u>Equal weighting</u>				
Years 1 to 6				
Ever employed (%)	88.1	86.0	2.0 *	0.065
Average quarterly employment rate (%)	63.9	63.3	0.6	0.590
Total earnings (\$)	93,412	94,604	- 1,192	0.615
Year 6				
Average quarterly employment rate (%)	63.0	62.7	0.3	0.841
Total earnings (\$)	18,093	18,523	- 430	0.481
Quarter 25				
Ever employed (%)	60.0	59.9	0.1	0.959
Total earnings (\$)	4,438	4,557	- 119	0.496
<u>Weighting by total FSS households^a</u>				
Years 1 to 6				
Ever employed (%)	87.8	86.3	1.4	0.203
Average quarterly employment rate (%)	63.6	63.6	0.0	0.973
Total earnings (\$)	93,595	94,418	- 823	0.738
Year 6				
Average quarterly employment rate (%)	62.2	63.5	- 1.3	0.401
Total earnings (\$)	17,982	18,636	- 655	0.292
Quarter 25				
Ever employed (%)	59.4	60.6	- 1.2	0.490
Total earnings (\$)	4,383	4,613	- 230	0.197
Sample size (total = 2,548)	1,282	1,266		

FSS = Family Self-Sufficiency.

^a Total FSS caseload includes 5,686 households enrolled in FSS as of December 31, 2014. The total includes FSS group members and FSS participants who enrolled in the program before the start of random assignment, enrolled in the program after the end of random assignment, or withdrew from the research sample.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS Impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance.

Sources: MDRC calculations using quarterly wage data from the National Directory of New Hires; December 2014 data from HUD Inventory Management System/Public and Indian Housing Information Center

Exhibit C.7. Impacts on Changes in Reported Estimated Gross Annual Head-of-Household Earnings, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Months 1 and 73, if still enrolled in HCV program</u>				
<i>Average change (\$)</i>	3,774	4,700	- 927	
<i>Change in earnings (%)</i>				
<i>Increase</i>	42.2	45.4	- 3.2	
<i>No change</i>	32.7	31.2	1.5	
<i>Decrease</i>	25.2	23.4	1.8	
<i>Had earnings (%)</i>				
<i>Months 1 and 73</i>	31.3	30.5	0.8	
<i>Month 1 only</i>	17.1	16.2	0.8	
<i>Month 73 only</i>	19.1	22.2	- 3.1	
<i>No reported earnings</i>	32.6	31.1	1.5	
<u>Month 1 and current or most recent month of enrollment in HCV program</u>				
Average change (\$)	5,194	5,181	13	0.982
Change in earnings (%)				0.905
Increase	45.4	44.8	0.6	
No change	32.3	33.0	- 0.7	
Decrease	22.3	22.2	0.1	
Had earnings (%)				0.806
Month 1 and current or most recent month	37.2	36.0	1.2	
Month 1 only	14.4	14.3	0.1	
Current or most recent month only	17.9	18.5	- 0.6	
No reported earnings	30.5	31.2	- 0.7	
Sample size (total = 2,548)	1,281	1,267		

FSS = Family Self-Sufficiency. HCV = Housing Choice Voucher.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Income calculations used data from each household's most recent HCV eligibility reexamination that took place between months 1 through 73 after their date of random assignment. For these calculations, households with no reported income or who exited or became ineligible from the HCV program were excluded from the calculations. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. For each dollar amount outcome, values above the 99th percentile were considered outliers and dropped from the calculations. In addition, a chi-square test for categorical variables was run to determine whether there is a difference in the distribution of related outcomes by research group means and differences displayed in italics are nonexperimental. No tests of statistical significance were performed on differences between the research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. Sample sizes for specific outcomes may vary because of missing values. Rounding may cause slight discrepancies in calculating sums and differences.

Source: MDRC calculations using HUD Inventory Management System/Public and Indian Housing Information Center data

Appendix D

Exhibit D.1. Differences by Research Group in Estimated Annual Income After 6 Years of Followup, FSS Impact Sample Members Currently Enrolled in the Housing Choice Voucher Program

Outcome	FSS Group	Control Group	Difference (Impact)
<u>Head-of-household income</u>			
Received income (%)	92.0	92.5	- 0.5
Earnings	50.8	53.2	- 2.3
Business revenue	3.4	3.6	- 0.2
Unemployment benefits	5.6	4.3	1.3
TANF, General Assistance, or food stamps/SNAP	22.6	20.7	1.9
Disability insurance or pension	19.3	19.3	0.0
Child support	20.3	19.2	1.1
Other income	6.6	10.1	- 3.5
Average total annual income (\$)	18,246	18,583	- 337
Earnings	12,206	12,766	- 560
Business revenue	133	157	-25
Unemployment benefits	587	395	191
TANF, General Assistance, or food stamps/SNAP	974	992	- 19
Disability insurance or pension	1,960	1,877	83
Child support	878	669	208
Other income	289	427	- 138
<u>Other household members' income</u>			
Received income (%)	35.9	33.4	2.5
Earnings	18.9	19.8	- 0.9
Business revenue	0.6	0.5	0.1
Unemployment benefits	0.7	1.0	- 0.4
TANF, General Assistance, or food stamps/SNAP	2.8	2.3	0.5
Disability insurance or pension	15.3	13.4	1.9
Child support	1.1	0.6	0.5
Other income	3.6	3.2	0.3
Average total annual income (\$)	7,042	6,342	700
Earnings	4,454	4,265	189
Business revenue	57	67	- 10
Unemployment benefits	74	107	- 33
TANF, General Assistance, or food stamps/SNAP	200	108	92
Disability insurance or pension	1,576	1,358	218
Child support	36	12	24
Other income	645	425	219

Outcome	FSS Group	Control Group	Difference (Impact)
<u>Total household income</u>			
Received income (%)	98.3	99.3	- 1.0
Earnings	59.6	62.8	- 3.2
Business revenue	4.0	4.1	- 0.1
Unemployment benefits	6.1	5.3	0.8
TANF, General Assistance, or food stamps/SNAP	24.9	22.5	2.4
Disability insurance or pension	30.9	30.3	0.6
Child support	21.2	19.7	1.5
Other income	10.1	13.2	- 3.1
<u>Total household income</u>			
Average total annual income (\$)	25,162	24,711	451
Earnings	16,463	16,930	- 466
Business revenue	183	195	- 11
Unemployment benefits	622	505	117
TANF, General Assistance, or food stamps/SNAP	1,124	1,126	- 2
Other income	654	885	- 231
Disability insurance or pension	3,448	3,206	242
Child support	912	682	231
Other income	654	885	- 231
Sample size (total = 1,678)	859	819	

FSS = Family Self-Sufficiency. SNAP = Supplemental Nutrition Assistance Program. TANF = Temporary Assistance for Needy Families.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Income calculations used data from each household's most recent Housing Choice Voucher eligibility reexamination that took place between months 62 through 73 after their date of random assignment. For these calculations, households with no reported income or who exited or became ineligible from the Housing Choice Voucher program were excluded from the calculations. Estimates of differences between research groups are nonexperimental, because enrollment in the FSS program could affect the incidence or timing of exits from the Housing Choice Voucher program after random assignment. If so, FSS and control group members who remain in the Housing Choice Voucher program could differ in observed or unobserved characteristics or experiences that may affect their income levels. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. For each dollar amount outcome, values above the 99th percentile were considered outliers and dropped from the calculations. As a result of this procedure, adjusted mean values for specific types of income do not sum to total income. Sample sizes for specific outcomes may vary because of missing values. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent because study participants may receive more than one type of income.

Source: MDRC calculations using HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit D.2. Impacts on Total Credit and Average Monthly Payments 2013–2021, FSS Impact Sample

Outcome (\$)	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Average total balance</u>				
Total nonhousing related credit accounts				
2013	8,202	7,456	747	0.169
2014	9,478	9,140	337	0.600
2015	12,465	11,971	494	0.508
2016	15,481	13,272	2,209	***
2017	16,649	15,538	1,110	0.229
2018	17,881	17,173	708	0.481
2019	18,725	17,979	746	0.484
2020	N/A	N/A	N/A	N/A
2021	23,791	23,249	543	0.656
Revolving credit accounts				
2013	642	613	30	0.722
2014	847	750	97	0.299
2015	1,133	1,018	115	0.313
2016	1,446	1,252	193	0.140
2017	1,633	1,498	135	0.414
2018	1,754	1,743	12	0.944
2019	1,892	1,969	- 78	0.633
2020	N/A	N/A	N/A	N/A
2021	1,766	1,815	- 49	0.757
Installment credit accounts				
2013	6,888	6,541	347	0.460
2014	7,919	8,112	- 193	0.738
2015	10,678	10,755	- 77	0.912
2016	13,457	11,804	1,653	**
2017	14,426	13,717	709	0.399
2018	15,574	15,124	450	0.629
2019	16,266	15,870	396	0.691
2020	N/A	N/A	N/A	N/A
2021	21,489	21,212	277	0.811
<u>Average total installment balance by type</u>				
Auto loans				
2013	3,074	2,970	104	0.687
2014	3,401	3,408	- 7	0.980
2015	4,563	4,577	- 14	0.968
2016	5,470	4,990	480	0.185
2017	5,992	5,256	737	*
2018	6,098	6,015	83	0.846
2019	6,590	6,052	538	0.218
2020	N/A	N/A	N/A	N/A
2021	7,628	7,351	277	0.576
Student loans				
2013	3,658	3,403	256	0.532

Outcome (\$)	FSS Group	Control Group	Difference (Impact)		P-Value
2014	4,277	4,522	- 244		0.628
2015	5,749	5,979	- 230		0.696
2016	7,572	6,557	1,015		0.124
2017	8,033	8,145	- 112		0.877
2018	9,060	8,707	353		0.658
2019	9,176	9,148	29		0.973
2020	N/A	N/A	N/A		N/A
2021	13,361	13,175	186		0.853
Personal installment loans					
2013	155	168	- 12		0.724
2014	241	182	58		0.190
2015	366	199	167	***	0.003
2016	415	256	159	***	0.010
2017	400	316	84		0.198
2018	416	402	14		0.836
2019	500	670	- 171		0.230
2020	N/A	N/A	N/A		N/A
2021	500	685	- 186		0.189
<u>Average monthly payments</u>					
Total nonhousing-related credit accounts					
2013	169	171	- 2		0.859
2014	201	197	4		0.696
2015	252	243	9		0.448
2016	300	270	30	**	0.022
2017	333	294	39	***	0.010
2018	359	336	23		0.190
2019	384	352	32	*	0.052
2020	N/A	N/A	N/A		N/A
2021	388	393	- 5		0.752
Revolving credit accounts					
2013	30	28	1		0.621
2014	40	36	5		0.190
2015	53	46	7	*	0.090
2016	65	59	6		0.221
2017	76	66	10		0.123
2018	79	76	3		0.649
2019	85	88	- 3		0.646
2020	N/A	N/A	N/A		N/A
2021	81	83	- 2		0.730
Installment credit accounts					
2013	136	136	0		0.991
2014	156	154	2		0.826
2015	196	192	4		0.715
2016	233	206	26	**	0.016
2017	252	224	27	**	0.024

Outcome (\$)	FSS Group	Control Group	Difference (Impact)		P-Value
2018	265	249	16		0.225
2019	286	256	30	**	0.028
2020	N/A	N/A	N/A		N/A
2021	281	286	- 5		0.727
Sample size (total = 2,548)	1,282	1,266			

FSS = Family Self-Sufficiency. N/A = not available.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. No specific weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in sums and differences. A two-tailed t-test was applied to differences between the FSS group and control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and the control group arose by chance.

Source: MDRC calculations using Experian Vantage 3.0 scores data

**Exhibit D.3. Impacts on Use of Alternative Financial Services, FSS
Impact Sample**

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Ever used AFS (%)</u>				
Total AFS (%)				
2014	3.2	3.3	- 0.1	0.850
2015	6.8	6.1	0.7	0.450
2016	9.2	7.7	1.5	0.170
2017	8.1	8.7	- 0.5	0.630
2018	10.5	9.8	0.8	0.516
2019	12.3	12.6	- 0.2	0.879
2020	N/A	N/A	N/A	N/A
2021	10.1	10.3	- 0.2	0.892
AFS Single Payment loans				
2014	2.9	2.4	0.5	0.458
2015	4.8	4.3	0.4	0.614
2016	6.0	5.2	0.8	0.383
2017	5.3	5.5	- 0.2	0.820
2018	5.2	4.4	0.8	0.344
2019	3.7	3.9	- 0.2	0.778
2020	N/A	N/A	N/A	N/A
2021	1.7	2.0	- 0.3	0.536
AFS Installment loans				
2014	0.0	0.4	- 0.4	** 0.031
2015	0.9	0.9	0.0	0.933
2016	1.8	1.3	0.5	0.286
2017	1.9	2.2	- 0.3	0.568
2018	3.3	3.2	0.0	0.957
2019	4.0	3.8	0.2	0.847
2020	N/A	N/A	N/A	N/A
2021	4.6	5.3	- 0.6	0.476
<u>Total AFS balance (\$)</u>				
All AFS loans				
2014	11	13	- 1	0.607
2015	63	58	4	0.742
2016	103	88	15	0.373
2017	82	100	- 19	0.268
2018	186	175	11	0.737
2019	270	263	7	0.865
2020	N/A	N/A	N/A	N/A
2021	230	245	- 16	0.692
AFS Single Payment loans				
2014	10	9	1	0.644
2015	36	37	0	0.962
2016	53	52	1	0.931
2017	46	50	- 4	0.721

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
2018	39	46	- 7	0.621
2019	34	34	0	0.998
2020	N/A	N/A	N/A	N/A
2021	6	8	- 2	0.478
AFS Installment loans				
2014	0	1	- 1 **	0.040
2015	6	4	2	0.503
2016	12	12	0	0.999
2017	11	18	- 7	0.183
2018	27	30	- 3	0.679
2019	44	42	2	0.887
2020	N/A	N/A	N/A	N/A
2021	32	41	- 9	0.401
Sample size (total = 2,548)	1,282	1,266		

AFS = alternative financial services. FSS = Family Self-Sufficiency. N/A = not available.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Clarity data on use of alternative financial services were available extending back to 2014. Sample sizes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. No specific weights were applied adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in sums and differences. A two-tailed t-test was applied to differences between the FSS group and control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and the control group arose by chance.

Source: MDRC calculations using Clarity credit data

Appendix E

Exhibit E.1. Impacts on Selected Employment and Earnings Outcomes in Years 1 to 6, by Selected Baseline Characteristics, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<u>In years 1 to 6</u>						
<u>Average quarterly employment rate (%)</u>						
Employment status						
Not employed	44.8	44.5	0.3	0.882	575	551
Employed part-time	75.9	74.6	1.2	0.581	335	313
Employed full-time	81.1	81.7	- 0.6	0.735	372	402
Educational attainment						
No degree or credential	58.4	55.5	2.9	0.293	257	253
High school degree or GED	60.9	61.3	- 0.4	0.856	319	297
Some college	66.2	66.6	- 0.5	0.802	470	512
2-year college degree or higher	69.6	67.5	2.1	0.433	236	204
Total household income						
\$1-\$10,000	52.4	53.4	- 1.0	0.679	318	320
\$10,001-\$20,000	59.4	57.4	2.0	0.325	438	401
More than \$20,000	74.6	73.4	1.2	0.461	526	545
Reported barrier to employment						
Yes	51.3	50.8	0.5	0.789	534	517
No	72.2	72.7	- 0.4	0.764	748	749
Disability status						
Received SSI/SSDI	38.0	37.5	0.5	0.859	177	188
Did not receive SSI/SSDI	68.0	67.9	0.1	0.964	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0-25	56.4	57.3	- 0.9	0.632	583	550
25.01-50	63.8	62.4	1.4	0.472	419	410
More than 50	78.7	76.2	2.5	0.230	280	306
Percentage of household income used for rent and utilities						
0-30	64.8	64.0	0.9	0.526	832	816
More than 30	62.2	62.1	0.1	0.944	450	450
<u>Total earnings (\$)</u>						
Employment status						
Not employed	53,521	52,626	895	0.791	575	551
Employed part-time	99,197	97,601	1,596	0.757	335	313
Employed full-time	148,279	150,848	- 2,569	0.627	372	402
Educational attainment						
No degree or credential	72,338	69,600	2,738	0.553	257	253
High school degree or GED	86,274	84,162	2,112	0.661	319	297
Some college	98,147	100,566	- 2,419	0.568	470	512
2-year college degree or higher	123,392	117,140	6,253	0.415	236	204

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Total household income						
\$1–\$10,000	62,226	63,950	– 1,724	0.724	318	320
\$10,001–\$20,000	73,051	70,506	2,545	0.522	438	401
More than \$20,000	131,236	128,077	3,159	0.462	526	545
Reported barrier to employment						
Yes	64,091	67,547	– 3,456	0.344	534	517
No	114,975	112,423	2,552	0.463	748	749
Disability status						
Received SSI/SSDI	42,333	40,563	1,770	0.715	177	188
Did not receive SSI/SSDI	102,285	103,162	– 877	0.755	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0–25	69,011	69,908	– 897	0.805	583	550
25.01–50	91,082	91,285	– 202	0.963	419	410
More than 50	147,341	143,218	4,123	0.491	280	306
Percentage of household income used for rent and utilities						
0–30	95,735	94,643	1,092	0.725	832	816
More than 30	92,200	91,074	1,126	0.794	450	450
<u>Average annual earnings greater than \$25,000 (%)</u>						
Employment status						
Not employed	9.7	10.1	– 0.4	0.825	575	551
Employed part-time	22.2	21.3	0.9	0.758	335	313
Employed full-time	47.6	50.7	– 3.1	0.349	372	402
Educational attainment						
No degree or credential	16.1	13.7	2.5	0.355	257	253
High school degree or GED	22.9	22.2	0.6	0.821	319	297
Some college	24.4	27.8	– 3.4	0.167	470	512
2-year college degree or higher	37.5	35.5	2.0	0.623	236	204
Total household income						
\$1–\$10,000	11.3	13.4	– 2.1	0.401	318	320
\$10,001–\$20,000	13.6	14.1	– 0.5	0.826	438	401
More than \$20,000	41.6	40.2	1.4	0.577	526	545
Reported barrier to employment						
Yes	13.8	16.9	– 3.1	0.116	534	517
No	32.0	31.0	1.0	0.626	748	749
Disability status						
Received SSI/SSDI	7.5	6.8	0.7	0.757	177	188
Did not receive SSI/SSDI	27.2	28.4	– 1.2	0.456	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0–25	13.0	14.4	– 1.5	0.444	583	550
25.01–50	21.9	24.2	– 2.2	0.372	419	410
More than 50	50.3	47.7	2.6	0.488	280	306
Percentage of household income used for rent and utilities						
0–30	24.1	24.7	– 0.6	0.730	832	816

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
More than 30	25.6	25.7	- 0.1	0.968	450	450
<u>In Year 6</u>						
<u>Average quarterly employment rate (%)</u>						
Employment status						
Not employed	47.4	47.1	0.3	0.889	575	551
Employed part-time	72.0	72.6	- 0.6	0.848	335	313
Employed full-time	77.1	77.8	- 0.7	0.795	372	402
Educational attainment						
No degree or credential	55.5	56.3	- 0.8	0.832	257	253
High school degree or GED	60.2	60.2	0.0	0.998	319	297
Some college	63.6	66.5	- 2.9	0.266	470	512
2-year college degree or higher	72.4	65.6	6.8 *	0.061	236	204
Total household income						
\$1-\$10,000	54.0	53.2	0.7	0.825	318	320
\$10,001-\$20,000	59.5	56.7	2.8	0.322	438	401
More than \$20,000	71.3	72.4	- 1.1	0.633	526	545
Reported barrier to employment						
Yes	49.9	51.8	- 1.8	0.471	534	517
No	71.5	70.9	0.6	0.773	748	749
Disability status						
Received SSI/SSDI	35.1	40.3	- 5.2	0.203	177	188
Did not receive SSI/SSDI	67.1	66.8	0.3	0.871	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0-25	57.9	57.8	0.0	0.991	583	550
25.01-50	61.4	62.1	- 0.7	0.796	419	410
More than 50	74.4	73.3	1.1	0.718	280	306
Percentage of household income used for rent and utilities						
0-30	63.8	63.9	- 0.1	0.954	832	816
More than 30	60.9	60.7	0.2	0.927	450	450
<u>Total earnings (\$)</u>						
Employment status						
Not employed	11,716	11,793	-76	0.932	575	551
Employed part-time	18,631	19,582	-951	0.473	335	313
Employed full-time	27,108	27,167	-59	0.964	372	402
Educational attainment						
No degree or credential	13,576	13,346	230	0.844	257	253
High school degree or GED	16,510	16,272	238	0.838	319	297
Some college	18,472	20,140	- 1,668	0.130	470	512
2-year college degree or higher	25,241	23,016	2,225	0.249	236	204
Total household income						
\$1-\$10,000	13,303	13,363	-61	0.960	318	320
\$10,001-\$20,000	15,119	14,216	903	0.387	438	401
More than \$20,000	23,862	24,275	-413	0.701	526	545

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Reported barrier to employment						
Yes	12,580	13,563	- 983	0.285	534	517
No	22,048	21,880	168	0.849	748	749
Disability status						
Received SSI/SSDI	8,183	9,097	- 914	0.506	177	188
Did not receive SSI/SSDI	19,686	20,129	- 443	0.531	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0-25	14,646	14,700	- 54	0.953	583	550
25.01-50	17,322	17,809	- 487	0.660	419	410
More than 50	26,244	26,401	- 157	0.916	280	306
Percentage of household income used for rent and utilities						
0-30	18,467	18,755	- 289	0.719	832	816
More than 30	17,730	17,696	33	0.975	450	450
<u>Employed in all four quarters (%)</u>						
Employment status						
Not employed	35.3	35.6	- 0.2	0.927	575	551
Employed part-time	59.3	61.1	- 1.9	0.633	335	313
Employed full-time	67.3	68.6	- 1.3	0.692	372	402
Educational attainment						
No degree or credential	43.8	47.6	- 3.9	0.357	257	253
High school degree or GED	50.5	49.8	0.6	0.866	319	297
Some college	50.5	55.4	- 4.8	0.119	470	512
2-year college degree or higher	61.5	52.3	9.2	** 0.040	236	204
Total household income						
\$1-\$10,000	43.7	41.9	1.7	0.642	318	320
\$10,001-\$20,000	47.2	44.0	3.2	0.329	438	401
More than \$20,000	59.8	63.2	- 3.3	0.233	526	545
Reported barrier to employment						
Yes	38.9	39.9	- 1.0	0.723	534	517
No	59.7	60.7	- 1.0	0.679	748	749
Disability status						
Received SSI/SSDI	27.1	29.2	- 2.1	0.626	177	188
Did not receive SSI/SSDI	55.0	56.1	- 1.1	0.592	1,105	1,078
Percentage of rent and utilities expenses paid by household						
0-25	45.7	45.3	0.4	0.892	583	550
25.01-50	49.4	51.9	- 2.5	0.431	419	410
More than 50	63.4	65.8	- 2.4	0.516	280	306
Percentage of household income used for rent and utilities						
0-30	52.6	52.5	0.0	0.986	832	816
More than 30	48.9	50.9	- 2.1	0.509	450	450
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency. GED = General Educational Development. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data, HUD Inventory Management System/Public and Indian Housing Information Center data; quarterly wage data from the National Directory of New Hires

**Appendix Exhibit E.2. Impacts on Selected Credit Score Outcomes,
by Selected Baseline Characteristics, FSS Impact Sample**

Outcome					Sample Sizes:	
	FSS Group	Control Group	Difference (Impact)	P-Value	FSS Group	Control Group
Average Experian Vantage 3.0 credit score in 2021						
Employment status						
Not employed	592	596	-4	0.416	541	518
Employed Part-Time	616	608	8	0.207	324	296
Employed Full-Time	617	619	-2	0.744	366	396
Educational attainment						
No degree or credential	591	605	-13 *	0.082	242	233
High school degree or GED	602	603	-1	0.869	305	284
Some college	600	604	-4	0.418	454	495
Two-year college degree or higher	638	620	19 **	0.020	230	198
Total household income						
No income	588	581	7	0.494	133	123
\$1 - \$10,000	588	596	-8	0.146	427	400
\$10,001 - \$20,000	609	616	-7	0.260	342	338
More than \$20,000	627	624	3	0.635	329	349
Reported barrier to employment						
Yes	599	606	-7	0.167	508	499
No	609	609	1	0.892	723	711
Disability status						
Received SSI/SSDI	603	594	9	0.300	162	178
Did not receive SSI/SSDI	606	609	-4	0.247	1,069	1,032
Rent burden ^a						
Lower	604	610	-5	0.282	564	563
Higher	605	604	1	0.857	577	582
Percentage of rent and utilities expenses paid by household						
0 - 25	593	597	-4	0.432	560	517
25.01 - 50	611	611	0	0.942	401	391
More than 50	621	621	1	0.916	270	302

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes:	
					FSS Group	Control Group
Has Vantage 3.0 credit score of 661 or higher in 2021 (Prime) (%)						
Employment status						†
Not employed	17.6	21.0	-3.4	0.144	575	551
Employed Part-Time	29.3	24.2	5.2	0.129	335	313
Employed Full-Time	29.8	28.1	1.7	0.606	372	402
Educational attainment						†††
No degree or credential	18.1	25.1	-7.0 *	0.053	257	253
High school degree or GED	21.1	24.1	-3.0	0.369	319	297
Some college	21.6	22.9	-1.3	0.632	470	512
Two-year college degree or higher	39.0	26.9	12.1 ***	0.008	236	204
Total household income						
No income	16.6	14.7	1.9	0.700	139	129
\$1 - \$10,000	18.6	20.1	-1.5	0.595	449	426
\$10,001 - \$20,000	23.0	29.1	-6.1 *	0.062	353	354
More than \$20,000	32.5	30.6	2.0	0.575	341	357
Reported barrier to employment						
Yes	22.1	24.6	-2.5	0.339	534	517
No	24.5	24.9	-0.4	0.839	748	749
Disability status						
Received SSI/SSDI	21.3	20.9	0.5	0.924	177	188
Did not receive SSI/SSDI	24.0	25.3	-1.4	0.435	1,105	1,078
Rent burden ^a						
Lower	23.9	25.6	-1.6	0.497	591	593
Higher	22.9	22.7	0.2	0.937	599	604
Percentage of rent and utilities expenses paid by household						
0 - 25	20.2	20.6	-0.4	0.855	583	550
25.01 - 50	24.6	24.8	-0.2	0.950	419	410
More than 50	30.0	31.0	-1.0	0.791	280	306
Average change in Vantage 3.0 scores, 2012 to 2021						
Employment status						
Not employed	53	55	-2	0.749	522	499

Employed Part-Time	62	56	6	0.395	312	288
Employed Full-Time	54	60	-6	0.362	361	392
Educational attainment						
No degree or credential	47	56	-9	0.293	236	225
High school degree or GED	56	63	-7	0.346	292	272
Some college	59	62	-3	0.659	443	486
Two-year college degree or higher	58	38	20 **	0.027	224	196
Total household income						
No income	59	54	5	0.712	125	117
\$1 - \$10,000	42	58	-16 **	0.014	409	391
\$10,001 - \$20,000	63	64	-1	0.884	338	327
More than \$20,000	60	53	7	0.303	323	344
Reported barrier to employment						
Yes	53	57	-5	0.401	488	485
No	56	58	-1	0.766	707	694
Disability status						
Received SSI/SSDI	55	39	15	0.121	156	170
Did not receive SSI/SSDI	55	60	-5	0.199	1,039	1,009
Rent burden ^a						
Lower	50	60	-10 **	0.048	546	547
Higher	58	56	2	0.634	564	571
Percentage of rent and utilities expenses paid by household						
0 - 25	49	59	-9 *	0.085	539	504
25.01 - 50	59	58	0	0.953	388	379
More than 50	59	57	3	0.722	268	296

Had low (below 500) Vantage 3.0 score in 2021 (%)

Employment status						
Not employed	7.4	7.7	-0.2	0.878	575	551
Employed Part-Time	7.0	5.9	1.1	0.574	335	313
Employed Full-Time	7.1	5.9	1.2	0.495	372	402
Educational attainment						
No degree or credential	10.5	10.7	-0.2	0.958	257	253
High school degree or GED	9.1	6.1	3.0	0.180	319	297
Some college	6.1	5.9	0.2	0.906	470	512

Two-year college degree or higher	2.9	5.0	-2.1	0.295	236	204
Total household income						
No income	9.6	11.3	-1.7	0.690	139	129
\$1 - \$10,000	9.3	6.9	2.4	0.213	449	426
\$10,001 - \$20,000	5.6	5.4	0.2	0.924	353	354
More than \$20,000	5.4	5.7	-0.3	0.877	341	357
Reported barrier to employment						
Yes	8.3	7.1	1.2	0.465	534	517
No	6.3	6.6	-0.3	0.799	748	749
Disability status						
Received SSI/SSDI	6.2	6.4	-0.2	0.940	177	188
Did not receive SSI/SSDI	7.4	6.8	0.6	0.584	1,105	1,078
Rent burden ^a						
Lower	7.2	5.8	1.5	0.311	591	593
Higher	7.3	7.7	-0.4	0.817	599	604
Percentage of rent and utilities expenses paid by household						
0 - 25	8.4	7.8	0.6	0.729	583	550
25.01 - 50	5.8	6.6	-0.8	0.643	419	410
More than 50	6.0	5.7	0.3	0.878	280	306

Has Vantage 3.0 score only, no Clarity Clear Early Risk score, in 2021 (%)

Employment status						
Not employed	31.6	32.3	-0.7	0.801	575	551
Employed Part-Time	34.4	31.6	2.7	0.432	335	313
Employed Full-Time	29.6	33.6	-4.0	0.204	372	402
Educational attainment						
No degree or credential	34.2	36.8	-2.6	0.531	257	253
High school degree or GED	36.7	35.6	1.1	0.775	319	297
Some college	25.3	27.6	-2.2	0.410	470	512
Two-year college degree or higher	33.8	36.8	-3.0	0.505	236	204
Total household income						
No income	31.6	31.8	-0.2	0.980	139	129
\$1 - \$10,000	32.4	32.5	-0.1	0.973	449	426
\$10,001 - \$20,000	31.7	31.1	0.7	0.846	353	354
More than \$20,000	28.4	36.8	-8.4 **	0.014	341	357

Reported barrier to employment						
Yes	31.2	34.8	-3.6	0.198	534	517
No	31.3	31.9	-0.7	0.766	748	749
Disability status						
Received SSI/SSDI	27.4	34.3	-6.9	0.190	177	188
Did not receive SSI/SSDI	32.0	32.7	-0.7	0.691	1,105	1,078
Rent burden ^a						
Lower	34.2	37.5	-3.3	0.206	591	593
Higher	27.9	28.8	-0.9	0.732	599	604
Percentage of rent and utilities expenses paid by household						
0 - 25	33.9	33.9	0.0	0.989 †	583	550
25.01 - 50	32.4	30.8	1.6	0.600	419	410
More than 50	24.8	33.9	-9.1 **	0.015	280	306
Sample size (total =2,548)	1,282	1,266				

FSS = Family Self-Sufficiency. GED = General Educational Development. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income.

^a Based on HUD Housing Choice Voucher program regulations, households described as having a “lower rent burden” did not have to pay more than required out-of-pocket expenses for rent and utilities in month 1 (the month of random assignment) because their gross rent was less than or equal to the area payment standard (representing the maximum housing subsidy allowed) and because the household was paying less than or equal to 30 percent of their adjusted monthly income for rent and utilities (representing the expected percentage of household income to be paid for rent and utilities). In contrast, households described as having a “higher rent burden” paid more than required out-of-pocket expenses for rent and utilities because their gross rent was higher than the area payment standard and because the household was paying more than 30 percent of their adjusted monthly income for rent and utilities. Not shown in this exhibit are results for study participants who had a combination of “lower” and “higher” rent burden in month 1.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent.

*** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent.

††† Statistical significance level of 1 percent.

Notes: The FSS Impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight

discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; Experian Vantage 3.0 scores data; Clarity Clear Early Risk scores data

Exhibit E.3. Impacts on Selected Credit Outcomes, by Selected Baseline Characteristics, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Total balance (traditional and alternative financial services) in 2021 (\$)						
Employment status						
Not employed	21,545	19,595	1,950	0.275	558	538
Employed part-time	24,377	24,137	240	0.927	330	303
Employed full-time	27,299	28,340	- 1,040	0.653	371	401
Educational attainment						
No degree or credential	9,385	9,456	- 71	0.966	249	245
High school degree or GED	13,970	13,615	355	0.828	310	288
Some college	24,040	24,032	8	0.997	465	505
2-year college degree or higher	54,840	50,526	4,314	0.392	235	204
Total household income						
No income	24,820	22,200	2,620	0.573	134	126
\$1-\$10,000	21,522	22,770	- 1,248	0.548	439	414
\$10,001-\$20,000	22,955	21,891	1,064	0.646	349	349
More than \$20,000	27,788	26,632	1,156	0.662	337	353
Reported barrier to employment						
Yes	21,320	19,212	2,108	0.264	522	511
No	25,977	26,435	- 458	0.781	737	731
Disability status						
Received SSI/SSDI	20,992	16,234	4,758	0.160	172	183

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Did not receive SSI/SSDI	24,468	24,774	- 306	0.818	1,087	1,059
Rent burden ^a						
Lower	20,738	22,640	- 1,903	0.258	582	577
Higher	27,235	23,370	3,865 **	0.045	586	597
Percentage of rent and utilities expenses paid by household						
0-25	22,426	22,385	42	0.982	571	536
25.01-50	22,868	23,213	- 346	0.870	410	402
More than 50	27,567	27,106	461	0.876	278	304
Total balance (traditional and alternative financial services) increased between 2014 and 2021 (%)						
Employment status						
Not employed	61.9	57.9	4.1	0.172	547	526
Employed part-time	65.3	65.4	- 0.1	0.973	322	298
Employed full-time	64.4	68.9	- 4.5	0.200	369	400
Educational attainment						
No degree or credential	50.8	56.4	- 5.6	0.256	243	240
High school degree or GED	55.7	57.9	- 2.2	0.596	301	280
Some college	67.7	68.0	- 0.3	0.924	463	501
2-year college degree or higher	78.2	67.6	10.6 **	0.013	231	203
Total household income						
No income	64.6	50.6	13.9 **	0.047	132	122
\$1-\$10,000	61.6	63.5	- 1.9	0.584	426	409
\$10,001-\$20,000	65.2	64.1	1.1	0.764	347	341
More than \$20,000	65.2	65.3	- 0.1	0.987	333	352
Reported barrier to employment						
Yes	61.7	61.0	0.7	0.826	510	503
No	64.8	65.0	- 0.2	0.944	728	721
Disability status						
Received SSI/SSDI	61.6	57.6	4.1	0.478	169	177
Did not receive SSI/SSDI	63.9	64.2	- 0.3	0.902	1,069	1,047

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Rent burden ^a						
Lower	62.0	63.2	- 1.2	0.669	571	570
Higher	65.1	62.6	2.4	0.395	578	586
Percentage of rent and utilities expenses paid by household						
0-25	63.9	61.2	2.7	0.361	560	526
25.01-50	60.4	65.0	- 4.7	0.185	403	395
More than 50	68.9	63.2	5.6	0.178	275	303
Average total monthly payments in 2021 (\$)						
Employment status						
Not employed	358	333	25	0.331	558	538
Employed part-time	413	451	- 37	0.331	330	303
Employed full-time	490	543	- 53	0.155	371	401
Educational attainment						
No degree or credential	283	292	- 8	0.805	249	245
High school degree or GED	335	352	- 17	0.623	310	288
Some college	431	488	- 58 *	0.071	465	505
2-year college degree or higher	627	537	90	0.102	235	204
Total household income						
No income	362	343	19	0.778	134	126
\$1-\$10,000	356	379	- 23	0.462	439	414
\$10,001-\$20,000	418	431	- 14	0.711	349	349
More than \$20,000	517	497	20	0.600	337	353
Reported barrier to employment						
Yes	361	373	- 12	0.666	522	511
No	456	459	- 2	0.923	737	731
Disability status						
Received SSI/SSDI	335	319	16	0.724	172	183
Did not receive SSI/SSDI	429	442	- 13	0.528	1,087	1,059
Rent burden ^a						
Lower	359	395	- 37	0.140	582	577
Higher	478	450	28	0.332	586	597

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Percentage of rent and utilities expenses paid by household						
0–25	365	380	– 15	0.572	571	536
25.01–50	409	433	– 24	0.464	410	402
More than 50	519	502	17	0.684	278	304
<u>Any credit problem in 2021 (%)</u>						
Employment status						
Not employed	60.8	56.2	4.6	0.109	558	537
Employed part-time	59.9	61.5	– 1.7	0.661	330	303
Employed full-time	66.4	65.5	0.9	0.783	371	401
Educational attainment						
No degree or credential	49.6	45.5	4.0	0.401	249	245
High school degree or GED	54.6	53.8	0.8	0.837	310	288
Some college	67.6	67.3	0.3	0.912	465	505
2-year college degree or higher	76.0	70.1	5.9	0.148	235	203
Total household income						
No income	63.1	59.1	4.0	0.536	134	126
\$1–\$10,000	59.7	59.6	0.1	0.976	439	414
\$10,001–\$20,000	61.2	60.3	0.9	0.807	349	349
More than \$20,000	66.6	61.8	4.9	0.187	337	352
Reported barrier to employment						
Yes	61.4	57.8	3.6	0.220	522	510
No	62.8	62.5	0.3	0.904	737	731
Disability status						
Received SSI/SSDI	61.2	54.3	7.0	0.218	172	182
Did not receive SSI/SSDI	62.6	61.3	1.3	0.526	1,087	1,059
Rent burden ^a						
Lower	60.2	59.0	1.2	0.663	582	577
Higher	64.8	60.9	3.9	0.159	586	596
Percentage of rent and utilities expenses paid by household						
0–25	60.7	60.0	0.7	0.805	571	536

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
25.01–50	59.5	59.0	0.5	0.890	410	402
More than 50	69.4	63.4	5.9	0.133	278	303
Credit problem: Has debt-to-income ratio above 43 percent in 2021 (%)						
Employment status						
Not employed	21.8	20.7	1.2	0.634	557	539
Employed part-time	19.8	23.5	– 3.7	0.268	329	302
Employed full-time	15.5	18.9	– 3.4	0.227	371	400
Educational attainment						
No degree or credential	15.5	13.8	1.7	0.615	247	244
High school degree or GED	16.3	19.5	– 3.3	0.309	311	289
Some college	20.5	22.4	– 1.9	0.482	465	504
2-year college degree or higher	24.9	27.8	– 2.9	0.507	234	204
Total household income						
No income	17.8	18.3	– 0.6	0.917	131	124
\$1–\$10,000	20.6	26.7	– 6.1 **	0.041	439	414
\$10,001–\$20,000	19.9	19.0	0.8	0.792	349	350
More than \$20,000	18.0	16.4	1.6	0.599	338	353
Reported barrier to employment						
Yes	18.8	19.2	– 0.3	0.896	522	510
No	20.0	21.8	– 1.8	0.393	735	731
Disability status						
Received SSI/SSDI	21.8	22.9	– 1.1	0.821	172	182
Did not receive SSI/SSDI	18.8	20.7	– 1.9	0.275	1,085	1,059
Rent burden ^a						
Lower	16.4	20.3	– 3.8 *	0.095	583	578
Higher	23.0	20.3	2.7	0.272	586	598
Percentage of rent and utilities expenses paid by household						
0–25	19.8	24.0	– 4.2 *	0.095	568	537
25.01–50	20.8	19.5	1.3	0.655	411	401
More than 50	17.2	16.2	1.0	0.756	278	303

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Credit problem: Total balance greater than or equal to 75 percent of total available credit (%)						
Employment status						
Not employed	44.8	40.7	4.1	0.153	556	537
Employed part-time	44.5	45.2	- 0.7	0.863	327	302
Employed full-time	45.2	47.0	- 1.8	0.609	370	400
Educational attainment						
No degree or credential	28.2	24.6	3.6	0.405	248	244
High school degree or GED	39.9	35.8	4.1	0.299	309	287
Some college	52.1	50.7	1.4	0.664	461	505
2-year college degree or higher	57.1	58.6	- 1.5	0.743	235	203
Total household income						
No income	51.7	45.5	6.2	0.354	133	126
\$1-\$10,000	45.4	42.5	2.9	0.384	438	413
\$10,001-\$20,000	45.1	43.1	2.1	0.573	347	349
More than \$20,000	43.3	43.5	- 0.2	0.955	335	351
Reported barrier to employment						
Yes	44.8	39.6	5.1 *	0.086 †	519	509
No	44.8	46.9	- 2.1	0.389	734	730
Disability status						
Received SSI/SSDI	40.8	41.1	- 0.4	0.947	172	182
Did not receive SSI/SSDI	45.7	44.1	1.6	0.432	1,081	1,057
Rent burden ^a						
Lower	45.5	42.0	3.4	0.212	579	575
Higher	44.8	45.8	- 1.1	0.707	583	596
Percentage of rent and utilities expenses paid by household						
0-25	46.5	42.5	3.9	0.170	568	536
25.01-50	42.9	44.8	- 2.0	0.559	409	401
More than 50	45.5	43.8	1.7	0.675	276	302
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency. GED = General Educational Development. SSDI = Social Security Disability Insurance.

SSI = Supplemental Security Income.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

^a Based on HUD Housing Choice Voucher program regulations, households described as having a “lower rent burden” did not have to pay more than required out-of-pocket expenses for rent and utilities in month 1 (the month of random assignment) because their gross rent was less than or equal to the area payment standard (representing the maximum housing subsidy allowed) and because the household was paying less than or equal to 30 percent of their adjusted monthly income for rent and utilities (representing the expected percentage of household income to be paid for rent and utilities). In contrast, households described as having a “higher rent burden” paid more than required out-of-pocket expenses for rent and utilities because their gross rent was higher than the area payment standard and because the household was paying more than 30 percent of their adjusted monthly income for rent and utilities. Not shown in this exhibit are results for FSS and control group members who had a combination of “lower” and “higher” rent burden in month 1.

Notes: The FSS Impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; Experian Vantage 3.0 scores data; Clarity Clear Early Risk scores data

Exhibit E.4. Impacts on Selected Indicators of Rent and Subsidies in Years 1 to 6, by Selected Baseline Characteristics, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<u>Enrolled in HCV program in month 72 (%)</u>						
Employment status						
Not employed	70.1	68.9	1.2	0.658	572	550
Employed part-time	66.3	71.2	- 4.8	0.196	336	312
Employed full-time	59.3	54.6	4.7	0.180	373	405
Educational attainment						
No degree or credential	69.3	70.3	- 1.0	0.806	257	256
High school degree or GED	66.8	68.3	- 1.6	0.682	319	297
Some college	66.9	63.4	3.5	0.242	470	510
2-year college degree or higher	57.5	58.8	- 1.3	0.798	235	204
Total household income						
No income	58.3	66.7	- 8.4	0.270	115	108
\$1-\$10,000	70.9	69.3	1.6	0.624	433	410
\$10,001-\$20,000	69.4	70.3	- 0.9	0.803	342	352
More than \$20,000	57.9	56.8	1.1	0.756	391	397
Reported barrier to employment						
Yes	69.4	66.3	3.1	0.291	532	516
No	62.8	64.6	- 1.8	0.450	749	751
Disability status						
Received SSI/SSDI	68.5	69.8	- 1.3	0.807	176	187
Did not receive SSI/SSDI	65.4	64.2	1.2	0.530	1,105	1,080
Percentage of rent and utilities expenses paid by household						
0-25	69.5	70.5	- 1.0	0.704	582	550
25.01-50	67.7	68.8	- 1.1	0.743	419	408
More than 50	55.9	49.7	6.3	0.126	280	307
Rent burden ^a						
Lower	65.1	69.4	- 4.3	0.117	585	587
Higher	66.8	61.2	5.5	** 0.044	579	584
Employment status						
Not employed	82,504	81,631	873	0.667	567	547

††

**

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Employed part-time	83,185	83,862	- 677	0.801	332	305
Employed full-time	79,050	76,290	2,760	0.306	371	401
Educational attainment						
No degree or credential	84,101	86,957	- 2,856	0.411	256	251
High school degree or GED	80,180	79,953	227	0.932	318	295
Some college	80,405	79,304	1,101	0.624	465	505
2-year college degree or higher	82,078	77,775	4,303	0.224	231	202
Total household income						
No income	69,327	68,231	1,096	0.812	115	107
\$1-\$10,000	79,172	78,828	344	0.877	431	405
\$10,001-\$20,000	84,126	84,737	- 611	0.815	337	350
More than \$20,000	84,067	83,589	478	0.871	387	391
Reported barrier to employment						
Yes	81,106	79,316	1,789	0.395	527	513
No	81,396	81,943	- 547	0.766	743	740
Disability status						
Received SSI/SSDI	74,305	76,080	- 1,775	0.618	173	186
Did not receive SSI/SSDI	82,892	81,171	1,721	0.248	1,097	1,067
Percentage of rent and utilities expenses paid by household						
0-25	85,099	84,832	268	0.893	575	543
25.01-50	83,094	82,773	322	0.895	417	403
More than 50	72,279	69,825	2,454	0.432	278	305
Rent burden ^a						
Lower	78,357	78,514	- 158	0.935	583	585
Higher	83,101	81,810	1,291	0.536	575	579
<u>Total family share in years 1 to 6 (\$)</u>						
Employment status						
Not employed	24,625	23,524	1,101	0.233	571	547
Employed part-time	31,626	30,179	1,447	0.317	334	310
Employed full-time	37,518	35,456	2,062	0.141	365	396

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Educational attainment						
No degree or credential	29,795	29,474	321	0.848	255	251
High school degree or GED	30,085	28,576	1,508	0.288	318	293
Some college	29,599	27,868	1,731	0.115	466	505
2-year college degree or higher	33,465	29,651	3,814 **	0.036	231	204
Total household income						
No income	20,233	18,898	1,335	0.525	115	108
\$1–\$10,000	21,431	20,763	668	0.509	433	410
\$10,001–\$20,000	31,698	30,044	1,654	0.170	342	351
More than \$20,000	41,139	40,110	1,029	0.500	380	384
Reported barrier to employment						
Yes	27,826	26,360	1,466	0.153	532	511
No	31,981	30,601	1,380	0.140	738	742
Disability status						
Received SSI/SSDI	27,683	28,328	– 645	0.713	176	186
Did not receive SSI/SSDI	30,724	28,892	1,831 **	0.015	1,094	1,067
Percentage of rent and utilities expenses paid by household						
0–25	23,172	22,387	785	0.382	582	550
25.01–50	33,962	32,892	1,070	0.364	418	405
More than 50	38,979	36,165	2,814	0.103	270	296
Rent burden ^a						
Lower	27,635	26,599	1,036	0.269	583	585
Higher	32,380	30,676	1,704	0.107	576	581
Total housing subsidy (HAP) in years 1 to 6 (\$)						
Employment status						
Not employed	57,478	57,709	– 231	0.883	564	546
Employed part-time	52,652	54,250	– 1,598	0.436	335	306
Employed full-time	40,653	39,311	1,342	0.478	370	402
Educational attainment						
No degree or credential	54,571	56,691	– 2,120	0.394	257	252
High school degree or GED	49,370	49,735	– 365	0.850	317	293
Some college	50,248	51,355	– 1,108	0.509	463	507

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
2-year college degree or higher	48,880	48,682	199	0.942	232	202
Total household income						
No income	47,441	49,220	- 1,779	0.627	113	107
\$1-\$10,000	57,696	58,112	- 416	0.820	430	403
\$10,001-\$20,000	52,500	54,477	- 1,977	0.315	336	349
More than \$20,000	42,831	42,525	307	0.877	390	395
Reported barrier to employment						
Yes	53,363	52,089	1,274	0.435	525	512
No	48,907	51,128	- 2,221 *	0.094	744	742
Disability status						
Received SSI/SSDI	47,802	49,051	- 1,249	0.636	174	187
Did not receive SSI/SSDI	51,671	51,490	181	0.870	1,095	1,067
Percentage of rent and utilities expenses paid by household						
0-25	61,754	62,434	- 680	0.671	573	540
25.01-50	49,247	50,175	- 928	0.605	416	405
More than 50	33,300	31,468	1,833	0.343	280	307
Rent burden ^a						
Lower	50,452	51,706	- 1,254	0.399	582	584
Higher	50,583	50,654	- 71	0.963	573	578
<u>Average gross rent per month of subsidy receipt (\$)</u>						
<i>Employment status</i>						
Not employed	1,356	1,360	- 4		565	546
Employed part-time	1,386	1,388	- 2		331	306
Employed full-time	1,406	1,402	5		371	399
<i>Educational attainment</i>						
No degree or credential	1,413	1,456	- 42		254	250
High school degree or GED	1,330	1,331	- 2		317	293
Some college	1,361	1,370	- 9		465	507
2-year college degree or higher	1,442	1,384	58		231	201
<i>Total household income</i>						

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<i>No income</i>	1,207	1,184	23		114	107
<i>\$1–\$10,000</i>	1,290	1,314	– 24		430	405
<i>\$10,001–\$20,000</i>	1,384	1,374	9		338	347
<i>More than \$20,000</i>	1,514	1,516	– 2		385	392
<i>Reported barrier to employment</i>						
<i>Yes</i>	1,333	1,338	– 5		524	509
<i>No</i>	1,410	1,410	0		743	742
<i>Disability status</i>						
<i>Received SSI/SSDI</i>	1,231	1,252	– 21		171	185
<i>Did not receive SSI/SSDI</i>	1,405	1,399	5		1,096	1,066
<i>Percentage of rent and utilities expenses paid by household</i>						
<i>0–25</i>	1,390	1,397	– 8		576	542
<i>25.01–50</i>	1,388	1,373	15		413	402
<i>More than 50</i>	1,348	1,352	– 4		278	305
<i>Rent burden^a</i>						
<i>Lower</i>	1,317	1,294	23		579	584
<i>Higher</i>	1,410	1,437	– 27		576	580
<u>Average family share per month of subsidy receipt (\$)</u>						
<i>Employment status</i>						
<i>Not employed</i>	417	400	17		570	546
<i>Employed part-time</i>	538	509	29		334	309
<i>Employed full-time</i>	710	715	– 5		366	395
<i>Educational attainment</i>						
<i>No degree or credential</i>	514	520	– 6		254	252
<i>High school degree or GED</i>	529	499	30		318	291
<i>Some college</i>	527	511	16		467	503

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<i>2-year college degree or higher</i>	611	568	42		231	204
<i>Total household income</i>						
<i>No income</i>	371	330	41		114	106
<i>\$1–\$10,000</i>	356	352	4		433	410
<i>\$10,001–\$20,000</i>	528	507	20		342	351
<i>More than \$20,000</i>	787	786	1		381	383
<i>Reported barrier to employment</i>						
<i>Yes</i>	472	473	– 1		531	511
<i>No</i>	587	555	32		739	739
<i>Disability status</i>						
<i>Received SSI/SSDI</i>	471	484	– 12		175	187
<i>Did not receive SSI/SSDI</i>	549	529	20		1,095	1,063
<i>Percentage of rent and utilities expenses paid by household</i>						
<i>0–25</i>	386	372	14		581	548
<i>25.01–50</i>	582	558	24		418	405
<i>More than 50</i>	767	777	– 10		271	295
<i>Rent burden^a</i>						
<i>Lower</i>	490	457	33		582	583
<i>Higher</i>	572	568	4		577	578
<u>Average housing subsidy per month of subsidy receipt (\$)</u>						
<i>Employment status</i>						
<i>Not employed</i>	939	968	– 28		561	546
<i>Employed part-time</i>	867	889	– 22		335	307
<i>Employed full-time</i>	697	695	2		368	399
<i>Educational attainment</i>						
<i>No degree or credential</i>	903	955	– 53		256	252
<i>High school degree or GED</i>	810	827	– 17		317	293
<i>Some college</i>	830	862	– 32		460	504

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<i>2-year college degree or higher</i>	846	838	8		231	203
<i>Total household income</i>						
<i>No income</i>	828	869	- 41		112	107
<i>\$1–\$10,000</i>	942	973	- 31		428	405
<i>\$10,001–\$20,000</i>	850	873	- 23		336	347
<i>More than \$20,000</i>	748	741	7		388	393
<i>Reported barrier to employment</i>						
<i>Yes</i>	873	873	0		523	510
<i>No</i>	825	862	- 37		741	742
<i>Disability status</i>						
<i>Received SSI/SSDI</i>	787	796	- 9		173	187
<i>Did not receive SSI/SSDI</i>	857	875	- 18		1,091	1,065
<i>Percentage of rent and utilities expenses paid by household</i>						
<i>0–25</i>	1,004	1,035	- 30		570	541
<i>25.01–50</i>	823	831	- 7		416	405
<i>More than 50</i>	586	579	6		278	304
<i>Rent burden^a</i>						
<i>Lower</i>	838	851	- 13		579	581
<i>Higher</i>	837	871	- 33		572	579
Sample size (total = 2,548)	1,281	1,267				

FSS = Family Self-Sufficiency. GED = General Educational Development. HAP = housing assistance payment.

HCV = Housing Choice Voucher. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

^a Based on HUD Housing Choice Voucher program regulations, households described as having a “lower rent burden” did not have to pay more than required out-of-pocket expenses for rent and utilities in month 1 (the month of random assignment) because their gross rent was less than or equal to the area payment standard (representing the maximum housing subsidy allowed) and because the household was paying less than or equal to 30 percent of their adjusted monthly income for rent and utilities (representing the expected percentage of household income to be paid for rent and utilities). In contrast, households described as having a “higher rent burden” paid more than required out-of-pocket expenses for rent and utilities because their gross rent was higher than the area payment standard and because the household was paying more than 30 percent of their

adjusted monthly income for rent and utilities. Not shown in this exhibit are results for FSS and control group members who had a combination of “lower” and “higher” rent burden in month 1.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to responses to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Results displayed in italics are nonexperimental. No tests of statistical significance were performed on differences between research groups in means or proportions.

Source: MDRC calculations using baseline data and HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.5. Impacts on Employment and Earnings in Years 1 to 6, by Program Approach, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes		
					FSS Group	Control Group	
<u>In years 1 to 6</u>							
<u>Average quarterly employment rate (%)</u>							
Emphasis on job search and post-employment services							
Low	65.5	64.3	1.2	0.595	286	289	
Medium	62.4	60.7	1.7	0.456	351	352	
High	63.9	64.5	- 0.6	0.713	645	625	
Emphasis on education and training †							
Low	64.5	61.9	2.6	0.209	386	392	
Medium	63.4	65.7	- 2.4	0.153	578	568	
High	63.7	61.1	2.6	0.268	318	306	
Emphasis on financial services							
Low	59.6	59.6	0.0	0.997	239	235	
Medium	63.3	64.1	- 0.8	0.683	420	419	
High	65.8	64.4	1.4	0.370	623	612	
Emphasis on monitoring and engagement							
Low	61.5	60.7	0.8	0.677	469	468	
Medium	66.7	65.2	1.5	0.366	551	547	
High	61.8	64.7	- 2.9	0.256	262	251	
<u>Total earnings (\$)</u>							
Emphasis on job search and post-employment services							
Low	90,743	91,557	- 814	0.869	286	289	
Medium	94,807	88,137	6,669	0.167	351	352	
High	94,695	98,497	- 3,803	0.309	645	625	
Emphasis on education and training							
Low	92,208	87,568	4,640	0.296	386	392	
Medium	93,103	98,505	- 5,402	0.152	578	568	
High	97,208	93,978	3,230	0.554	318	306	
Emphasis on financial services							
Low	78,738	80,198	- 1,459	0.778	239	235	
Medium	95,350	99,693	- 4,343	0.345	420	419	
High	98,833	95,256	3,576	0.333	623	612	
Emphasis on monitoring and engagement †††							
Low	91,749	87,968	3,781	0.377	469	468	
Medium	95,844	91,700	4,143	0.262	551	547	
High	93,171	110,647	- 17,476	***	0.003	262	251
<u>Average annual earnings greater than \$25,000 (%)</u>							
Emphasis on job search and post-employment services							
Low	21.7	26.0	- 4.3	0.174	286	289	
Medium	24.7	23.1	1.6	0.556	351	352	
High	25.4	26.3	- 0.9	0.650	645	625	
Emphasis on education and training							
Low	23.4	21.1	2.3	0.371	386	392	
Medium	24.0	27.9	- 3.9	* 0.075	578	568	

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes		
					FSS Group	Control Group	
High	26.7	25.5	1.2	0.691	318	306	
Emphasis on financial services							
Low	18.1	18.2	- 0.2	0.953	239	235	
Medium	25.0	28.9	- 3.8	0.138	420	419	
High	26.2	25.8	0.4	0.845	623	612	
Emphasis on monitoring and engagement							
Low	24.9	23.4	1.5	0.526	469	468	
Medium	24.2	23.4	0.8	0.730	551	547	
High	23.5	33.6	- 10.1	***	0.002	262	251

In year 6

Average quarterly employment rate (%)

Emphasis on job search and post-employment services						
Low	64.4	62.5	1.9	0.523	286	289
Medium	62.5	60.4	2.1	0.495	351	352
High	61.9	64.5	- 2.7	0.232	645	625
Emphasis on education and training						
Low	64.1	62.2	1.8	0.508	386	392
Medium	63.1	64.7	- 1.6	0.480	578	568
High	60.6	59.9	0.6	0.842	318	306
Emphasis on financial services						
Low	61.3	60.9	0.4	0.907	239	235
Medium	62.2	63.7	- 1.5	0.589	420	419
High	63.6	63.0	0.6	0.783	623	612
Emphasis on monitoring and engagement						
Low	59.7	59.2	0.5	0.847	469	468
Medium	66.1	64.3	1.8	0.433	551	547
High	61.4	66.2	- 4.9	0.170	262	251

Total earnings (\$)

Emphasis on job search and post-employment services							
Low	17,817	17,333	484	0.702	286	289	
Medium	17,997	18,013	- 16	0.990	351	352	
High	18,209	19,366	- 1,157	0.218	645	625	
Emphasis on education and training							
Low	18,525	17,973	552	0.628	386	392	
Medium	18,167	19,487	- 1,321	0.176	578	568	
High	17,491	17,265	225	0.865	318	306	
Emphasis on financial services							
Low	16,327	16,702	- 375	0.784	239	235	
Medium	18,752	20,089	- 1,337	0.269	420	419	
High	18,360	18,057	303	0.737	623	612	
Emphasis on monitoring and engagement							
Low	17,448	17,176	271	0.802	469	468	
Medium	18,929	17,920	1,009	0.284	551	547	
High	17,602	22,092	- 4,490	***	0.003	262	251

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Employed during all four quarters (%)						
Emphasis on job search and post-employment services						
Low	53.2	49.1	4.0	0.284	286	289
Medium	51.8	50.9	0.8	0.822	351	352
High	49.8	54.2	- 4.4 *	0.097	645	625
Emphasis on education and training						
Low	53.9	51.8	2.0	0.533	386	392
Medium	51.9	54.6	- 2.7	0.335	578	568
High	46.1	48.2	- 2.1	0.582	318	306
Emphasis on financial services						
Low	50.2	48.6	1.6	0.702	239	235
Medium	51.5	53.4	- 1.9	0.564	420	419
High	51.3	52.5	- 1.2	0.645	623	612
Emphasis on monitoring and engagement						
Low	47.9	48.4	- 0.6	0.857	469	468
Medium	55.1	53.4	1.7	0.543	551	547
High	48.6	56.0	- 7.4 *	0.077	262	251
Sample size (total = 2,548)						
	1,282	1,266				

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as: total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; data collected from Individual Training and Services Plan forms; information provided by FSS administrators and case managers; quarterly wage data from the National Directory of New Hires

Exhibit E.6. Impacts on Credit Scores in 2021, by Program Approach, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<u>Average Experian Vantage 3.0 credit score in 2021</u>						
Emphasis on job search and post-employment services						
Low	596	591	4	0.517	273	278
Medium	615	619	- 4	0.576	332	330
High	604	608	- 4	0.338	626	602
Emphasis on education and training						
Low	602	604	- 2	0.759	370	375
Medium	598	598	0	0.946	556	545
High	622	629	- 7	0.339	305	290
Emphasis on financial services						
Low	585	600	- 15 **	0.040	235	227
Medium	608	605	3	0.550	396	400
High	611	612	- 1	0.879	600	583
Emphasis on monitoring and engagement						
Low	614	619	- 5	0.365	451	446
Medium	598	597	1	0.871	527	521
High	606	606	0	0.975	253	243
<u>Has Vantage 3.0 credit score of 661 or higher in 2021 (Prime) (%)</u>						
Emphasis on job search and post-employment services						
Low	19.9	17.7	2.3	0.497	286	289
Medium	27.7	30.1	- 2.4	0.480	351	352
High	22.8	25.1	- 2.3	0.318	645	625
Emphasis on education and training						
Low	23.7	21.1	2.6	0.384	386	392
Medium	19.5	21.6	- 2.1	0.376	578	568
High	30.9	35.2	- 4.3	0.245	318	306
Emphasis on financial services						
Low	16.4	23.8	- 7.3 *	0.051	239	235
Medium	24.9	22.3	2.6	0.379	420	419
High	25.5	26.7	- 1.3	0.604	623	612

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Emphasis on monitoring and engagement						
Low	26.7	27.7	- 1.1	0.713	469	468
Medium	19.9	20.5	- 0.7	0.788	551	547
High	25.8	28.1	- 2.3	0.549	262	251
<u>Has Vantage 3.0 score only, no Clarity Clear Early Risk score, in 2021 (%)</u>						
Emphasis on job search and post-employment services						
Low	27.9	26.7	1.2	0.755	286	289
Medium	38.9	38.2	0.7	0.855	351	352
High	29.2	32.4	- 3.2	0.181	645	625
Emphasis on education and training						
Low	30.4	29.5	0.9	0.791	386	392
Medium	26.1	29.4	- 3.3	0.205	578	568
High	41.6	44.4	- 2.8	0.452	318	306
Emphasis on financial services						
Low	24.4	27.1	- 2.6	0.522	239	235
Medium	32.5	33.6	- 1.1	0.718	420	419
High	32.4	35.7	- 3.3	0.203	623	612
Emphasis on monitoring and engagement						
Low	38.3	40.9	- 2.7	0.381	469	468
Medium	23.2	26.2	- 3.0	0.257	551	547
High	35.9	33.0	2.9	0.487	262	251
<u>Average change in Vantage 3.0 scores, 2012 to 2021</u>						
Emphasis on job search and post-employment services						
Low	59	65	- 6	0.437	265	269
Medium	53	57	- 4	0.542	320	324
High	53	55	- 2	0.664	610	586
Emphasis on education and training						
Low	44	56	- 12 *	0.077	358	359
Medium	60	60	0	0.996	545	535
High	58	58	0	0.988	292	285
Emphasis on financial services						
Low	50	63	- 14	0.110	231	217

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Medium	57	55	2	0.775	383	391
High	56	57	-1	0.895	581	571
Emphasis on monitoring and engagement						
Low	55	56	-1	0.822	435	434
Medium	57	62	-5	0.345	514	507
High	54	48	6	0.496	246	238
Had low (below 500) Vantage 3.0 score in 2021 (%)						
Emphasis on job search and post-employment services						
Low	9.4	6.6	2.8	0.240	286	289
Medium	4.4	6.7	-2.3	0.208	351	352
High	7.5	7.0	0.5	0.712	645	625
Emphasis on education and training						
Low	7.7	6.7	1.0	0.612	386	392
Medium	7.5	7.4	0.1	0.949	578	568
High	6.3	5.2	1.1	0.580	318	306
Emphasis on financial services						
Low	9.5	6.1	3.4	0.183	239	235
Medium	5.5	6.7	-1.2	0.473	420	419
High	7.3	7.2	0.1	0.946	623	612
Emphasis on monitoring and engagement						
Low	6.1	5.2	0.9	0.563	469	468
Medium	8.1	8.3	-0.2	0.925	551	547
High	6.7	6.5	0.2	0.920	262	251
<hr/>						
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS Impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for

specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; data collected from Individual Training and Services Plan forms; information provided by FSS administrators and case managers; Experian Vantage 3.0 credit scores; Clarity Clear Early Risk scores data

Exhibit E.7. Impacts on Incidence of Credit Outcomes in 2021, by Program Approach, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<u>Total balance (traditional and alternative financial services) in 2021 (\$)</u>						
Emphasis on job search and post-employment services †						
Low	23,172	26,011	- 2,839	0.285	281	285
Medium	21,711	23,397	- 1,686	0.473	342	340
High	25,819	22,186	3,633 **	0.040	636	617
Emphasis on education and training						
Low	27,791	25,607	2,184	0.344	381	285
Medium	22,860	22,188	672	0.716	567	561
High	21,162	23,598	- 2,436	0.335	311	300
Emphasis on financial services						
Low	22,680	23,575	- 895	0.736	237	232
Medium	24,648	23,354	1,294	0.583	411	409
High	24,427	23,233	1,193	0.499	611	601
Emphasis on monitoring and engagement						
Low	18,800	18,925	- 126	0.943	462	457
Medium	26,689	26,703	- 14	0.994	540	537
High	27,054	25,710	1,344	0.681	257	248
<u>Total balance increased between 2014 and 2021 (%)</u>						
Emphasis on job search and post-employment services						
Low	64.5	61.6	2.9	0.489	274	280
Medium	61.8	66.3	- 4.5	0.241	335	338
High	64.5	61.9	2.6	0.343	629	606
Emphasis on education and training						
Low	65.8	65.4	0.4	0.921	373	374
Medium	62.9	62.1	0.8	0.772	562	553
High	63.1	61.5	1.6	0.687	303	297
Emphasis on financial services						
Low	61.8	61.3	0.6	0.900	235	228

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Medium	63.5	65.3	- 1.9	0.583	403	403
High	65.2	61.7	3.5	0.207	600	593
Emphasis on monitoring and engagement						
Low	57.9	60.2	- 2.4	0.484	452	449
Medium	67.9	65.6	2.3	0.434	532	529
High	63.5	65.0	- 1.5	0.726	254	246
<u>Average total monthly payments in 2021 (\$)</u>						
Emphasis on job search and post-employment services						
Low	375	403	- 27	0.494	281	285
Medium	418	431	- 13	0.709	342	340
High	437	427	10	0.698	636	617
Emphasis on education and training						
Low	451	456	- 5	0.880	381	285
Medium	416	415	1	0.976	567	561
High	374	402	- 28	0.421	311	300
Emphasis on financial services						
Low	400	432	- 32	0.491	237	232
Medium	437	411	26	0.438	411	409
High	409	430	- 21	0.405	611	601
Emphasis on monitoring and engagement						
Low	377	392	- 15	0.621	462	457
Medium	434	469	- 35	0.231	540	537
High	439	396	43	0.296	257	248
<u>Credit problem: Has debt-to-income ratio above 43 percent in 2021 (%)</u>						
Emphasis on job search and post-employment services						
Low	17.1	20.6	- 3.4	0.316	278	284
Medium	17.6	21.3	- 3.7	0.238	342	341
High	21.5	20.5	1.0	0.677	637	616
Emphasis on education and training						
Low	21.7	24.5	- 2.7	0.389	380	382
Medium	19.8	19.4	0.4	0.854	567	560
High	15.4	19.2	- 3.8	0.240	310	299

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Emphasis on financial services						
Low	18.2	19.4	- 1.2	0.737	236	232
Medium	20.8	20.1	0.7	0.811	411	409
High	19.1	21.6	- 2.5	0.282	610	600
Emphasis on monitoring and engagement						
Low	18.1	18.9	- 0.8	0.763	462	458
Medium	20.0	23.6	- 3.5	0.161	537	536
High	19.8	19.1	0.7	0.849	258	247
Credit problem: Total balance greater than or equal to 75 percent of total available credit (%)						
Emphasis on job search and post-employment services						
Low	47.6	48.1	- 0.5	0.894	279	283
Medium	42.1	41.6	0.5	0.905	341	340
High	45.2	43.1	2.1	0.433	633	616
Emphasis on education and training						
Low	49.1	48.2	0.9	0.794	377	379
Medium	44.4	43.4	1.0	0.732	566	560
High	40.6	39.0	1.6	0.678	310	300
Emphasis on financial services						
Low	46.8	43.1	3.7	0.409	234	231
Medium	44.1	43.9	0.2	0.959	410	408
High	45.3	43.3	2.0	0.472	609	600
Emphasis on monitoring and engagement						
Low	38.0	37.4	0.6	0.851	460	456
Medium	51.3	48.4	2.9	0.324	536	535
High	43.4	46.2	- 2.8	0.530	257	248
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for

specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; data collected from Individual Training and Services Plan forms; information provided by FSS administrators and case managers; Experian and Clarity credit data

Exhibit E.8. Impacts on Selected Indicators of Rent and Subsidies in Years 1 to 6, by Selected Program Implementation Features, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
<u>Enrolled in HCV program in month 72 (%)</u>						
Emphasis on job search and post-employment services						
Low	62.1	62.3	0.2	0.956	282	287
Medium	75.7	76.2	- 0.5	0.890	351	352
High	62.0	60.1	1.9	0.485	648	628
Emphasis on education and training						
Low	65.6	63.6	2.0	0.568	385	392
Medium	64.8	61.8	3.0	0.283	577	567
High	66.0	74.9	- 8.9 **	0.018	319	308
Emphasis on financial services						
Low	53.3	50.7	2.6	0.584	238	235
Medium	73.1	69.3	3.8	0.224	419	418
High	65.4	67.9	- 2.5	0.362	624	614
Emphasis on monitoring and engagement						
Low	70.3	68.5	1.8	0.556	472	472
Medium	60.6	60.1	0.6	0.845	547	545
High	67.9	70.0	- 2.1	0.610	262	250
<u>Total gross rent in years 1 to 6 (\$)</u>						
Emphasis on job search and post-employment services						
Low	65,897	65,009	887	0.754	282	287
Medium	95,949	95,708	241	0.927	350	351
High	81,041	78,742	2,298	0.355	638	615
Emphasis on education and training						
Low	71,558	71,600	- 42	0.985	385	392
Medium	78,842	76,461	2,382	0.327	569	555
High	98,427	99,771	- 1,344	0.709	316	306
Emphasis on financial services						
Low	59,158	58,375	783	0.783	238	235
Medium	89,954	88,014	1,940	0.503	411	407
High	84,196	84,568	- 372	0.872	621	611
Emphasis on monitoring and engagement						
Low	88,331	86,043	2,287	0.383	470	470
Medium	68,238	68,286	- 48	0.981	547	545
High	99,306	96,320	2,986	0.497	253	238
<u>Total family share in years 1 to 6 (\$)</u>						
Emphasis on job search and post-employment services						
Low	26,417	24,819	1,599	0.255	282	287
Medium	41,534	37,474	4,060 **	0.014	348	347
High	32,732	31,998	735	0.539	641	618
Emphasis on education and training						
Low	27,693	25,697	1,996 *	0.090	384	390
Medium	29,040	28,708	332	0.749	570	560
High	35,595	33,159	2,436	0.145	316	303

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
Emphasis on financial services						
Low	23,382	22,803	580	0.698	238	235
Medium	31,041	29,854	1,187	0.353	413	410
High	32,358	30,539	1,818 *	0.083	619	608
Emphasis on monitoring and engagement						
Low	32,177	29,791	2,386 *	0.053	468	465
Medium	27,754	26,069	1,685 *	0.088	546	544
High	32,706	32,630	76	0.966	256	244
<u>Total housing subsidy (HAP) in years 1 to 6 (\$)</u>						
Emphasis on job search and post-employment services						
Low	41,781	42,141	- 361	0.869	282	287
Medium	60,379	62,800	- 2,422	0.213	350	351
High	50,320	48,545	1,775	0.330	637	616
Emphasis on education and training						
Low	44,337	45,550	- 1,213	0.452	385	392
Medium	48,709	47,562	1,147	0.525	567	556
High	63,010	65,515	- 2,505	0.357	317	306
Emphasis on financial services						
Low	35,716	35,496	220	0.908	237	235
Medium	57,284	57,313	-29	0.989	410	408
High	52,345	53,641	- 1,296	0.452	622	611
Emphasis on monitoring and engagement						
Low	55,662	55,416	245	0.899	471	470
Medium	41,320	42,351	- 1,031	0.488	546	545
High	64,763	61,863	2,900	0.381	252	239
<u>Average gross rent per month of rent subsidy receipt (\$)</u>						
Emphasis on job search and post-employment services						
Low	1,129	1,127	2		281	285
Medium	1,534	1,531	3		346	351
High	1,409	1,407	2		640	615
Emphasis on education and training						
Low	1,202	1,226	- 25		384	391
Medium	1,352	1,345	7		567	554
High	1,654	1,628	27		316	306
Emphasis on financial services						
Low	1,094	1,106	- 12		238	234
Medium	1,447	1,467	- 20		410	406
High	1,444	1,427	17		619	611
Emphasis on monitoring and engagement						
Low	1,462	1,455	7		471	468
Medium	1,207	1,211	- 4		544	545
High	1,614	1,602	12		252	238
<u>Average family share per month of rent subsidy receipt (\$)</u>						
Emphasis on job search and post-employment services						
Low	437	424	13		281	285

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Size	
					FSS Group	Control Group
Medium	594	542	52		348	347
High	551	557	- 6		641	618
<i>Emphasis on education and training</i>						
Low	491	468	23		384	386
Medium	528	533	- 5		571	561
High	614	568	46		315	303
<i>Emphasis on financial services</i>						
Low	459	461	- 2		238	234
Medium	526	517	9		413	407
High	577	548	30		619	609
<i>Emphasis on monitoring and engagement</i>						
Low	565	531	34		469	462
Medium	507	494	13		545	544
High	562	558	5		256	244
<u>Average housing subsidy per month of rent subsidy receipt (\$)</u>						
<i>Emphasis on job search and post-employment services</i>						
Low	708	719	- 10		281	285
Medium	952	1,000	- 48		348	351
High	852	853	- 1		635	616
<i>Emphasis on education and training</i>						
Low	730	767	- 37		383	389
Medium	813	821	- 8		565	556
High	1,048	1,066	- 18		316	307
<i>Emphasis on financial services</i>						
Low	651	659	- 9		237	233
Medium	911	948	- 36		406	408
High	875	892	- 18		621	611
<i>Emphasis on monitoring and engagement</i>						
Low	905	931	- 26		469	466
Medium	713	731	- 19		545	545
High	1,037	1,029	8		250	241
Sample size (total = 2,548)	1,281	1,267				

FSS = Family Self-Sufficiency. HAP = housing assistance payment. HCV = Housing Choice Voucher.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Sample sizes for specific outcomes may vary because of missing values. Estimates were regression-adjusted using ordinary least squares, controlling for differences in sample member characteristics recorded at the time of random assignment. No special weights were applied to responses to adjust for differences in sample size by housing authority. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between the FSS group and the control group for continuous variables and selected outcomes expressed as proportions. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across

different subgroups. Results displayed in italics are nonexperimental. No tests of statistical significance were performed on differences between research groups in means or proportions.
Sources: MDRC calculations using baseline data; data collected from Individual Training and Services Plan forms; information provided by FSS administrators and case managers; HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.9. Variation in Employment and Earnings in Years 1 to 6, by Research Group, FSS Program Graduation Status, FSS Escrow Disbursement Status, and HCV Program Eligibility Status at End of Followup, FSS Impact Sample

Outcome	Graduated with Escrow Disbursement of \$5,001 or More	Graduated with Escrow Disbursement of \$0–\$5,000	Still Enrolled in FSS Program	Exited from FSS Program and Still Enrolled in HCV Program	Exited from FSS and HCV Programs	Control Group
<u>Average quarterly employment (%)</u>						
Quarter of random assignment	58.2	53.3	54.2	56.9	59.2	58.9
Year 1	68.8	65.1	59.5	58.4	61.9	61.4
Year 2	74.1	69.6	63.2	59.0	64.4	63.7
Year 3	78.1	72.6	63.2	59.7	64.2	63.9
Year 4	81.1	74.7	61.8	59.0	63.5	64.1
Year 5	81.7	74.4	62.9	59.0	63.4	64.4
Year 6	78.5	71.9	65.4	56.3	61.1	62.8
Years 1 to 6	77.1	71.4	62.7	58.5	63.1	63.4
<u>Total earnings (\$)</u>						
Quarter of random assignment (annualized)	10,052	10,120	10,034	10,275	10,589	10,864
Year 1	12,946	14,784	10,800	10,961	12,240	12,141
Year 2	17,142	18,178	12,578	11,884	14,859	14,037
Year 3	19,464	20,562	13,133	12,502	16,472	15,297
Year 4	22,446	21,841	13,007	13,274	17,219	16,342
Year 5	25,543	23,091	13,898	14,199	18,167	17,496
Year 6	25,292	23,824	15,110	14,199	18,885	18,446
Years 1 to 6	122,833	122,280	78,525	77,018	97,842	93,759
Sample size (total = 2,548)	161	101	93	455	472	1,266

FSS = Family Self-Sufficiency. HCV = Housing Choice Voucher.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. Comparisons of employment and earnings outcomes are nonexperimental. No tests of statistical significance were performed on variation in outcomes within the FSS group or between any FSS subgroup and the control group.

Sources: MDRC calculations using quarterly wage data from the National Directory of New Hires; housing agency administrative data; HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.10. Trends in Credit Scores and Credit Use, by Research Group, FSS and HCV Program Enrollment Status, and FSS Escrow Disbursement Status, FSS Impact Sample

Outcome	FSS Group					Control Group
	Graduated with Disbursement of \$5,001 or More	Graduated with Disbursement of \$0–\$5,000	Still Enrolled in FSS Program	Exited FSS only; Still Enrolled in HCV Program	Exited FSS and HCV Programs	
<u>Average VantageScore</u>						
Prerandom assignment						
2012	554	543	559	546	550	548
Random assignment years						
2013	558	547	563	548	554	550
2014	564	552	571	556	554	556
Post-random assignment years						
2015	575	568	577	560	554	559
2016	577	570	578	559	554	563
2017	585	578	601	560	560	568
2018	594	574	592	563	561	569
2019	597	579	605	565	567	571
2020	N/A	N/A	N/A	N/A	N/A	N/A
2021	633	604	632	599	597	607
<u>Has good or excellent VantageScore (%)</u>						
Prerandom assignment						
2012	9.4	8.4	5.6	7.8	7.4	8.3
Random assignment years						
2013	10.1	8.1	10.9	6.9	7.8	7.8
2014	9.8	5.9	16.2	7.3	9.0	9.7
Post-random assignment years						
2015	13.5	12.4	16.7	8.7	10.8	10.7
2016	16.5	14.5	17.2	11.0	11.3	12.0
2017	18.8	11.0	20.2	11.2	11.3	13.5
2018	23.8	15.1	21.2	12.5	12.3	14.2
2019	20.5	17.4	28.0	13.5	13.1	15.2
2020	N/A	N/A	N/A	N/A	N/A	N/A
2021	36.5	22.7	37.3	20.0	20.6	24.5

Outcome	FSS Group			Exited FSS only; Still Enrolled in HCV Program	Exited FSS and HCV Programs	Control Group
	Graduated with Disbursement of \$5,001 or More	Graduated with Disbursement of \$0–\$5,000	Still Enrolled in FSS Program			
Total traditional or alternative financial services debt (\$)						
2014	8,735	9,323	6,693	9,502	10,295	9,155
2021	26,526	29,093	25,049	22,628	23,194	23,481
Average monthly payments (\$)						
2014	245	215	154	197	221	206
2021	519	462	388	376	415	424
Has high debt-to-income ratio or no recorded income (%)						
2014	20.4	16.1	13.2	14.3	15.4	14.6
2021	18.7	20.1	32.3	28.5	21.5	26.7
Sample size (total = 2,548)	159	103	93	455	472	1,266

FSS = Family Self-Sufficiency. HCV = Housing Choice Voucher. N/A = not applicable.

Notes: The FSS impact sample includes HCV heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences.

Comparisons of credit score and credit use outcomes are nonexperimental. No tests of statistical significance were performed on variation in outcomes within the FSS group or between any FSS subgroup and the control group. Data were extracted from Experian VantageScore archive files for December of each year (2012 to 2019) and for June 2021. Data were extracted from Clarity Clear Early Risk archive files for December of each year (2014 to 2019) and from June 2021. No data were extracted from 2020 files, although some summary measures from the June 2021 files include outcomes collected during 2020. Sample sizes vary because of missing data.

Sources: MDRC calculations using Experian and Clarity credit data; housing agency administrative data; HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.11. Variation in Employment and Earnings in Years 1 to 6, by Research Group, FSS Program Graduation or Exited Status, and FSS Escrow Disbursement or Forfeiture Status at End of Followup, FSS Impact Sample

Outcome	FSS Group					Control Group
	Graduated with Disbursement of \$5,001 or More	Graduated with Disbursement of \$0–\$5,000	Still Enrolled in FSS Program	Exited from FSS and Did Not Accrue Escrow	Exited from FSS and Forfeited Escrow Balance	
<u>Average quarterly employment (%)</u>						
Quarter of random assignment	58.2	53.3	54.2	57.3	59.0	58.9
Year 1	69.0	65.1	59.6	56.5	64.6	61.4
Year 2	74.3	69.6	63.3	56.4	68.0	63.7
Year 3	78.4	72.7	63.4	56.0	69.0	63.9
Year 4	81.4	74.8	61.9	56.6	66.8	64.1
Year 5	81.9	74.4	63.0	57.0	66.2	64.3
Year 6	78.7	71.9	65.4	55.4	62.8	62.8
Years 1 to 6	77.3	71.4	62.7	56.3	66.2	63.4
<u>Total earnings (\$)</u>						
Quarter of random assignment						
(annualized)	10,044	10,108	10,032	10,516	10,345	10,864
Year 1	12,956	14,761	10,807	11,248	12,055	12,138
Year 2	17,146	18,110	12,589	12,886	14,038	14,031
Year 3	19,441	20,454	13,138	14,293	14,849	15,292
Year 4	22,424	21,735	13,013	15,041	15,621	16,336
Year 5	25,506	22,975	13,898	16,223	16,273	17,491
Year 6	25,258	23,692	15,113	16,437	16,824	18,439
Years 1 to 6	122,731	121,727	78,559	86,128	89,660	93,727
Sample size (total = 2,548)	161	101	93	504	423	1,266

FSS = Family Self-Sufficiency.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating

sums. Comparisons of employment and earnings outcomes are nonexperimental. No tests of statistical significance were performed on variation in outcomes within the FSS group or between any FSS subgroup and the control group.
Sources: MDRC calculations using quarterly wage data from the National Directory of New Hires; housing agency administrative data; HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.12. Trends in Credit Scores and Credit Use, by Research Group and FSS Enrollment Status at End of Followup, FSS Impact Sample

Outcome	<u>FSS Group</u>						Control Group
	Graduated with Disbursement of \$5,001 or More	Graduated with Disbursement of \$0–\$5,000	Still Enrolled in FSS Program	Exited from FSS and Did Not Accrue Escrow	Exited from FSS and Forfeited Escrow Balance		
<u>Average VantageScore</u>							
Prerandom assignment							
2012	553	543	559	551	545	548	
Random assignment years							
2013	558	547	563	553	550	550	
2014	564	552	571	553	556	556	
Post-random assignment years							
2015	575	569	577	556	559	559	
2016	577	570	578	558	555	563	
2017	585	578	601	559	561	568	
2018	594	574	592	562	562	569	
2019	597	579	605	564	568	571	
2020	N/A	N/A	N/A	N/A	N/A	N/A	
2021	633	604	632	596	600	607	
<u>Has good or excellent VantageScore (%)</u>							
Prerandom assignment							
2012	9.4	8.3	5.6	8.5	6.5	8.3	
Random assignment years							
2013	10.0	8.1	10.9	7.5	7.3	7.8	
2014	9.8	5.8	16.2	8.4	8.0	9.7	
Post-random assignment years							
2015	13.5	12.4	16.7	9.6	10.0	10.7	
2016	16.4	14.5	17.2	11.9	10.3	12.0	
2017	18.8	11.0	20.2	11.9	10.5	13.5	
2018	23.9	15.1	21.2	11.6	13.4	14.2	
2019	20.6	17.5	28.0	12.1	14.8	15.2	
2020	N/A	N/A	N/A	N/A	N/A	N/A	
2021	36.5	22.7	37.3	20.5	20.1	24.5	
<u>Total traditional or alternative financial services debt (\$)</u>							
2014	8,749	9,308	6,702	9,621	10,259	9,153	
2021	26,575	29,103	25,064	22,139	23,820	23,477	
<u>Average monthly payments (\$)</u>							
2014	244	215	154	211	209	206	
2021	519	461	388	402	390	424	
<u>Has high debt-to-income ratio or no recorded income (%)</u>							
2014	20.3	16.0	13.2	15.5	14.1	14.6	
2021	18.6	20.2	32.2	27.3	22.1	26.7	

Sample size (total = 2,548)	159	103	93	504	423	1,266
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FSS = Family Self-Sufficiency. N/A = not applicable.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. Comparisons of credit score and credit use outcomes are nonexperimental. No tests of statistical significance were performed on variation in outcomes within the FSS group or between any FSS subgroup and the control group. Data were extracted from Experian VantageScore archive files for December of each year (2012 to 2019) and for June 2021. Data were extracted from Clarity Clear Early Risk archive files for December of each year (2014 to 2019) and for June 2021. No data were extracted from 2020 files, although some summary measures from the June 2021 files include outcomes collected during 2020. Sample sizes vary because of missing data.

Sources: MDRC calculations using Experian and Clarity credit data; housing agency administrative data; HUD Inventory Management System/Public and Indian Housing Information Center data

Exhibit E.13. Impacts on Employment and Earnings in Years 1 to 6, by HUD Performance Indicator Scores for 2019 and 2020, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
<u>In years 1 to 6</u>						
Average quarterly employment rate (%)						
Low	64.5	65.5	- 1.0	0.561	505	502
Medium	63.3	61.7	1.7	0.342	533	525
High	62.3	64.2	- 1.9	0.469	244	239
Total earnings (\$)						
Low	98,384	96,577	1,806	0.658	505	502
Medium	89,152	87,811	1,340	0.727	533	525
High	93,132	103,950	- 10,818 *	0.072	244	239
Average annual earnings greater than \$25,000 (%)						
Low	26.7	26.1	0.6	0.816	505	502
Medium	22.7	22.9	- 0.2	0.943	533	525
High	23.5	28.7	- 5.2	0.124	244	239
Employed during all quarters (%)						
Low	25.2	27.2	- 2.0	0.415	505	502
Medium	19.4	22.9	- 3.5	0.128	533	525
High	17.2	24.2	- 7.0 **	0.048	244	239
<u>In Year 6</u>						
Average quarterly employment rate (%)						
Low	63.4	65.4	- 2.0	0.404	505	502
Medium	61.9	60.5	1.4	0.558	533	525
High	63.1	62.8	0.4	0.923	244	239
Total earnings (\$)						
Low	18,484	18,790	- 306	0.761	505	502
Medium	17,551	17,266	285	0.774	533	525
High	18,541	20,500	- 1,959	0.210	244	239
Employed during all quarters (%)						
Low	52.0	54.9	- 2.9	0.318	505	502
Medium	50.4	49.0	1.4	0.635	533	525
High	50.8	53.1	- 2.3	0.603	244	239
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Housing agencies are grouped into categories based on their 2019 and 2020 composite scores, calculated with a performance management scoring system developed by HUD and

Abt Associates. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; housing agency performance indicator scores provided by HUD and Abt Associates; quarterly wage data from the National Directory of New Hires

Exhibit E.14. Impacts on Credit Outcomes, by HUD Performance Indicator Scores for 2019 and 2020, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value	Sample Sizes	
					FSS Group	Control Group
Average Experian Vantage 3.0 credit score in 2021						
Low	604	604	0	0.930	487	482
Medium	607	614	- 7	0.184	511	501
High	603	601	2	0.764	233	227
Has Vantage 3.0 credit score of 661 or higher in 2021 (Prime) (%)						
Low	21.5	22.8	- 1.2	0.638	505	502
Medium	25.6	26.6	- 1.0	0.710	533	525
High	23.6	24.5	- 0.9	0.828	244	239
Average change in Vantage 3.0 scores, 2012 to 2021						
Low	56	60	- 4	0.511	476	470
Medium	52	58	- 6	0.267	491	485
High	58	52	6	0.475	228	224
Total balance (traditional and alternative financial services) in 2021 (\$)						
Low	25,985	23,906	2,079	0.312	499	493
Medium	21,451	22,981	- 1,530	0.398	524	513
High	25,575	23,718	1,857	0.548	236	236
Total balance increased between 2014 and 2021 (%)						
Low	64.9	63.9	1.0	0.745	491	484
Medium	61.0	63.7	- 2.8	0.358	512	505
High	66.5	60.8	5.7	0.216	235	235
Average total monthly payments in 2021 (\$)						
Low	434	435	- 1	0.982	499	493
Medium	371	417	- 47 *	0.098	524	513
High	466	432	34	0.483	236	236
Credit problem: Has debt-to-income ratio above 43 percent in 2021(%)						
Low	19.9	23.2	- 3.3	0.210	498	492
Medium	17.7	19.6	- 1.9	0.446	522	514
High	21.1	19.5	1.6	0.686	237	235
Credit problem: Total balance greater than or equal to 75 percent of total available credit (%)						
Low	47.4	44.6	2.8	0.370	497	492
Medium	43.5	42.2	1.3	0.643	520	511
High	44.2	44.0	0.2	0.959	236	236
Sample size (total = 2,548)	1,282	1,266				

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

† Statistical significance level of 10 percent. †† Statistical significance level of 5 percent. ††† Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Housing agencies are grouped into categories based on their 2019 and 2020 composite scores, calculated with a performance management scoring system developed by HUD and Abt Associates. Estimates were regression-adjusted using ordinary least squares, controlling for prerandom assignment characteristics of sample members. Sample sizes may vary because of missing

values. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups.

Sources: MDRC calculations using baseline data; housing agency performance indicator scores provided by HUD and Abt Associates; Experian and Clarity credit data

Using Causal Forests Procedures to Test for Variation by Subgroup in Family Self-Sufficiency Program Effects

Traditional “confirmatory” analysis of subgroup effects first examines whether having access to a program’s services, requirements, or financial incentives leads to positive or negative impacts for the full sample. Next, the analysis tests whether impacts vary among specific subgroups. Researchers typically choose subgroups for impact analysis at an early phase in the research, based on results of previous evaluations, or to test the effects of targeting strategies employed by programs in the evaluation. Researchers may also study program effects for additional subgroups, selected at a later phase in the research, although these results are usually treated as “exploratory” and best used to inform hypotheses about likely subgroup effects for later studies. The analysis presented in chapter 7 has followed this very well-trodden path. Approaching subgroup analyses in this way may miss important sources of variation, especially when, as with Family Self-Sufficiency (FSS), limited evidence exists on which to base hypotheses about potential subgroup effects. At the other extreme, generating impact estimates for many additional subgroups comes with a very high risk of finding spurious subgroup effects, resulting from chance, rather than the true effects of the program.

Recently, methods have emerged from machine learning literature that enable a more careful search for variation in subgroup impacts that may not have been prespecified at the beginning of a study. One of these methods, developed by economist Susan Athey and colleagues, is called “causal forests” (Wager and Athey, 2018). Causal forests is particularly applicable to the problem for FSS of specifying subgroups for impact analysis based on few evaluations of comparable programs. Working with Dr. Luke Miratrix, a statistician from Harvard University, the team made one of the first applications of the causal forest algorithm in an evaluation of a federal program.

Why Causal Forests?

The causal forest algorithm can search numerous subgroups and combinations of subgroups, whose members (from both research groups) share multiple characteristics in common. For selected outcome measures, the causal forest algorithm runs conditional models (for the full impact sample) through which it identifies subgroups with the largest “heterogeneity” (variation) in program effects, controlling for effects for all other subgroups. The algorithm identifies important sources of variation in subgroup impacts, including subgroups that may have been missed by more traditional analyses. Crucially, it takes advantage of the machine learning method of “cross validation,” which recomputes estimates across many randomly selected subsamples to ensure that they are more likely to be true effects and not resulting from chance. By generating subgroup effects repeatedly with different subsamples, causal forests estimates which subgroups are “important,” meaning that the algorithm identifies them as being most often implicated in explaining variation in subgroup impacts (Wager and Athey, 2018). It is this process of cross validation that gives causal forests the ability to conduct disciplined subgroup exploration.¹

¹ It should be noted that the causal forests approach is a new method, and the properties and statistical procedures are still being developed. MDRC has recently been awarded a grant from the Institute of Educational Sciences to further explore the application for evaluations and the relative performance compared with other statistical procedures. In applying the method to FSS, MDRC opted to stick with the main, established uses of causal forests,

Running the Causal Forests Algorithm

The causal forests algorithm estimates a Conditional Average Causal Effect (CACE) for each outcome by matching individual FSS and control group members based on their shared characteristics recorded at baseline and estimating the difference in the outcome measure for each pair. The algorithm then sorts these individual impact estimates from most negative to most positive. At this point, the distribution of individual impact estimates includes everyone in the full sample. Next, the CACE (individual-level effect) values for each subgroup of interest are selected and resorted from most negative to most positive effect. Finally, the distribution of CACE values, positive and negative, are compared across related subgroups—for example, by highest level of educational attainment at baseline. Exhibit E.15 summarizes the results of these tests.

Exhibit E.15. Causal Forests Analysis: Conditional Average Causal Effects on Selected Employment, Earnings, and Credit Score Outcomes, by Selected Baseline Characteristics, FSS Impact Sample

Outcome	Conditional Average Causal Effect		
	25th Percentile	Median	75th Percentile
<u>Average quarterly employment rate in years 1 to 6 (%)</u>			
Educational attainment			
No degree or credential	– 0.5	1.0	2.3
High school degree or GED	– 0.3	1.1	2.4
Some college	– 1.0	0.6	2.0
2-year college degree or higher	0.2	1.2	2.3
Age			
18–34	– 0.4	1.0	2.2
35–44	– 0.6	0.7	2.0
45–61	– 0.4	1.0	2.4
Race/ethnicity			
Black/African-American	– 0.6	0.8	2.2
Other race/ethnicity	– 0.2	1.1	2.3
<u>Total earnings in years 1 to 6 (\$)</u>			
Educational attainment			
No degree or credential	– 2,289	663	4,168
High school degree or GED	– 1,127	1,984	5,339
Some college	– 4,178	– 621	3,037
2-year college degree or higher	– 1,297	1,803	4,771
Age			
18–34	– 3,519	– 231	3,070
35–44	– 2,462	1,269	5,088
45–61	– 1,551	1,406	4,523

which is, as a method, used to search for uncovered sources of subgroup variation. Causal forests can also be used to find very nuanced subgroup structures—such as subgroups defined by a combination of three or more characteristics. The team initially applied the method to FSS for this second purpose, as well, but decided not to pursue that particular use further, given the small sample sizes when multiple characteristics are used to find groups and given the lack of clarity in the literature about statistical diagnostics—which is not surprising given how new these methods are.

Outcome	Conditional Average Causal Effect		
	25th Percentile	Median	75th Percentile
Race/ethnicity			
Black/African-American	- 2,817	608	4,144
Other race/ethnicity	- 1,869	1,274	4,357
<u>Average Experian Vantage 3.0 credit score in 2021</u>			
Educational attainment			
No degree or credential	- 13	- 4	3
High school degree or GED	- 5	0	4
Some college	- 9	- 2	3
2-year college degree or higher	- 1	4	8
Age			
18-34	- 4	2	7
35-44	- 9	- 3	2
45-61	- 10	- 1	4
Race/ethnicity			
Black/African-American	- 3	2	7
Other race/ethnicity	- 19	- 13	- 6
<u>Has Vantage 3.0 credit score of 661 or higher in 2021 (Prime) (%)</u>			
Educational attainment			
No degree or credential	- 5.7	- 3.0	- 0.8
High school degree or GED	- 4.6	- 2.0	0.9
Some college	- 4.4	- 1.4	1.1
2-year college degree or higher	0.9	3.2	6.1
Age			
18-34	- 3.9	- 1.0	1.8
35-44	- 3.4	- 0.6	2.3
45-61	- 5.4	- 2.3	1.2
Race/ethnicity			
Black/African-American	- 2.6	- 0.2	2.5
Other race/ethnicity	- 7.7	- 4.9	- 1.7

GED = General Educational Development.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Average quarterly employment rate is calculated as total quarters with employment divided by total quarters of followup, expressed as a percentage. In some sites, most members of the other race/ethnicity subgroup self-identified as White, whereas in other sites most of these subgroup members self-identified as Hispanic or Latino.

Sources: MDRC calculations using baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; quarterly wage data from the National Directory of New Hires; Experian Vantage 3.0 scores data

For this evaluation, causal forests analyses were conducted for a small number of key employment and earnings outcomes calculated with National Directory of New Hires (NDNH) data and credit score outcomes calculated with Experian VantageScore 3.0 data. The analysis focuses on three key points in the distribution of CACE (individual-level effects) values within each subgroup—whether positive or negative and the relative magnitude:

- The median value, if positive, the median shows that the FSS program led to an increase above the control group for at least one-half of the members of the subgroup. If negative, the median shows that the FSS program led to a decrease below the control group for at least one-half of the members of the subgroup.
- The 25th and 75th percentile values show the magnitude of CACE (individual-level effect) values for subgroup members in the FSS group who experienced relatively large effects, positive or negative. For example, it may be inferred that FSS led to a relatively large and consistent effect on a particular outcome for a particular subgroup if the CACE values are positive at all three points in the distribution—25th percentile, median, and 75th percentile. This result would imply that at least 75 percent of FSS group members experienced an increase over the control group. Conversely, it would be inferred that FSS led to a consistently negative effect, if negative, CACE values were found at the 25th percentile, median, and 75th percentile.

Causal forests procedures may also show more mixed results for particular outcomes and subgroups. For example, the CACE (individual-level effect) value at the 25th percentile could be negative, whereas the CACE values at the median and 75th percentiles could be positive.² In this situation, the initial finding of a positive effect (based on the median value) would likely still apply. However, a more complete finding about the consistency of effects would be based on a comparison of the magnitude of the effects at the 25th and 75th percentiles—more consistently positive if the magnitude of the positive effect at the 75th percentile exceeded the magnitude of the negative effect at the 25th percentile and more mixed if the negative effect at the 25th percentile was larger.

Results for Subgroups Based on Baseline Characteristics

As exhibit E.15 shows, the causal forest procedures confirmed that the FSS program had different effects for subgroups defined by study participants' highest educational credential at the time of random assignment. Specifically, for outcomes estimated with NDNH data, FSS group members who entered the study with a 2-year post-secondary degree or higher experienced a small positive effect for average quarterly employment rate for 6 years that included the 25th percentile, median, and 75th percentile values. In addition, for the measure of total earnings in Years 1 to 6, FSS group members with a 2-year post-secondary degree or higher had a positive effect at the 75th percentile of nearly \$4,800, more than three times the value of negative effect on earnings shown at the 25th percentile. By contrast, for the measure of total earnings, the subgroup with some college credits at baseline was the only educational attainment subgroup with a negative effect (of about \$600) at the median and with a negative effect at the 25th percentile that exceeded the positive effect at the 75th percentile. Moreover, on the measure of having a prime VantageScore in 2021, effects are consistently positive at the 25th percentile (1 percentage point), median (3 percentage points), and 75th percentile (6 percentage points) for study participants who entered the evaluation with a 2-year post-secondary degree or higher. By contrast, individuals with no degree experienced reductions of similar magnitude. It should be recalled that each of these estimates holds after factoring in the influence of the other subgroup variables in the model.

² This result would be obtained if between 50 and 75 percent of individual comparisons showed a higher value for the FSS group member.

Causal forests analysis did not identify any other baseline characteristics subgroups that were included in the traditional analysis in chapter 7 as important sources of variation in subgroup effects. The approach did find a few instances of variation in effects among other subgroups, primarily by race and ethnicity. Effects on the VantageScore in 2021 and on the incidence of having a prime VantageScore in 2021 were small and close to zero among study participants who self-identified as Black or African-American at baseline. By contrast, effects were consistently negative (at the 25th percentile, median, and 75th percentile) among study participants who self-identified as a member of a different racial or ethnic group.³ This difference in effects was not seen for the two NDNH employment and earnings outcomes.

The causal forests analysis also showed some variation in effects by age group, although the effects are inconsistent. Among study participants in the 18 to 34 age category at baseline, the median effect on total earnings in Years 1 to 6 is negative, and the negative effect at the 25th percentile exceeds the positive effect the 75th percentile, whereas the opposite pattern was found for older subgroups. Conversely, the pattern of effects on VantageScores was slightly more positive for the youngest subgroup compared with the pattern for older study participants. These findings for the subgroups defined by race and ethnicity should be considered exploratory in that they were unrelated to the evaluation’s initial hypotheses about likely effects of the FSS program.

Results for Subgroups Based on Public Housing Agency

Throughout the evaluation, the primary impact model for the full sample and for traditional subgroup analysis included covariates for each public housing agency (PHA), omitting one PHA as the reference value. It was never possible to perform traditional subgroup analyses for individual PHAs, because sample sizes for many PHAs were too small. In some instances, causal forests analysis can overcome the problem of small subgroup samples by running a single conditional model that includes the full sample for all sites.

MDRC attempted this procedure for NDNH and credit score data but found no reliable estimates of new variation in impacts by PHA or combinations of PHA characteristics. It is important to emphasize the word “reliable” in this assessment. Because the FSS sample is distributed thinly over so many sites and subgroups, it may be the case that subgroup variation could have been detected had larger sample sizes been available. However, it should be noted that had the same patterns of effects been found with sufficiently large samples in each PHA, these effects could be interpreted as small and inconsistent—that is, somewhat more positive for total earnings than for credit scores. For example, for the measure of total earnings in Years 1 to 6, nearly all PHAs recorded small median effects, but most PHAs had a positive effect at the 75th percentile that exceeded the value of the negative effect at the 25th percentile. Nearly all PHAs also recorded median effect values close to 0 for the VantageScore for 2021 and for the measure of having a prime score. However, two PHAs had consistently negative effects (at the 25th percentile, median, and 75th percentile) on one or both credit score outcomes (results not shown).

Conclusion

In conclusion, although causal forests did find some additional variation by subgroup in impacts on credit data outcomes, overall, the analysis confirms that the conventional methods used in

³ In some sites, most of these subgroup members self-identified as White, whereas in other sites, most of these subgroup members self-identified as Hispanic or Latino.

core evaluation did not miss important and reliable sources of subgroup variation in the effects of the FSS program based on study participant characteristics measured at baseline.

Reference

Wager, Stefan, and Susan Athey. 2018. “Estimation and Inference of Heterogeneous Treatment Effects Using Random Forests,” *Journal of the American Statistical Association* 113 (523): 1228–1242.

Appendix F

Family Self-Sufficiency Long-Term Followup Survey Response Analysis

Responses from the Family Self-Sufficiency (FSS) Long-Term Followup Survey (also referred to as the Long-Term Survey in the main report) were used to evaluate program outcomes in a range of domains, including FSS program engagement and service use, employment and earnings, credit, financial service use, and material hardship. The survey was fielded to 1,300 randomly selected FSS and control group members, a subset of who responded. When a survey response sample is a subsample of the study sample, it raises questions not only about the reliability of the results but also whether they can be generalized to all study participants.

This appendix details the results of tests performed to assess the reliability and generalizability of impact estimates calculated using data from the FSS Long-Term Followup Survey. To evaluate reliability, the appendix first examines whether members of the fielded sample were more or less likely to respond based on their baseline characteristics. Next, the appendix compares both research groups in the respondent sample to determine whether they produced comparable response rates and share similar sample characteristics. If the respondent and nonrespondent samples possess congruous characteristics and both research groups also share similar sample traits and comparable response rates, then the survey results may be considered nonbiased.

Survey results are deemed generalizable if strong evidence exists that the same results would have been produced if all members of the eligible sample had responded to the survey. To ascertain the generalizability program impacts from nonsurvey data, sources are compared across the respondent and survey eligible samples. If only limited discrepancies are observed, then the results are considered generalizable.

The analyses presented in this appendix show that the survey is reliable and that the results for the survey respondent sample can be generalized to the study sample.

Main Findings

- Slightly more than 61 percent of the fielded sample responded to the Long-Term Followup Survey. Response rates were comparable for both research groups.
- A comparison of survey respondents and nonrespondents reveals few statistically significant differences in baseline characteristics, and sample characteristics had little bearing on survey response.
- Within the respondent sample, baseline characteristics were similar for both research groups.
- Impacts on key nonsurvey outcomes were similar for both the respondent and eligible samples.

Survey Sample Selection

Not all study participants were eligible to be interviewed for the Long-Term Followup Survey. Thirty-eight study participants were excluded due to death, incarceration, institutionalization, or lack of fluency in either English or Spanish. The remaining 2,518 members of the FSS impact comprised the initial *eligible sample*. Thirteen-hundred members of the eligible sample were randomly selected for inclusion in the *fielded sample*. A stratified random sample was employed to select a number of FSS group and control group members from each housing authority

proportional to those present in the eligible sample. From April through August 2021, the survey firm M. Davis and Company attempted to interview all members of the fielded sample. During outreach, 16 study participants were found to be deceased, incarcerated, institutionalized, or lacking fluency in either English or Spanish. These study participants were removed from both the eligible and fielded samples, reducing the sample sizes to 2,502 and 1,284, respectively.

Survey Response Rates

Members of the fielded sample who were interviewed for the Long-Term Followup Survey are referred to as the *respondent sample*, and the remaining members who were not interviewed form the *nonrespondent sample*. Exhibit F.1 shows that 791 study participants comprising 61.6 percent of the fielded sample completed the survey. The nonrespondent sample includes study participants who refused to be interviewed or could not be contacted. Both research groups exhibited a similar response rate of slightly more than 60 percent.

Exhibit F.1. FSS Long-Term Followup Survey Samples and Response Rates

Outcome	FSS Group	Control Group	Total
Impact sample	1,285	1,271	2,556
Eligible sample	1,260	1,242	2,502
Fielded sample	645	639	1,284
Survey respondents	403	388	791
Survey response rate (% of Fielded)	62.5	60.7	61.6

FSS = Family Self-Sufficiency.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. The FSS Long-Term Followup Survey eligible sample includes FSS impact sample heads-of-household who could be interviewed if successfully contacted (excluding impact sample members who had died, were incarcerated, were institutionalized, or did not speak English or Spanish). The FSS Long-Term Followup Survey fielded sample includes members of the eligible sample who were randomly selected for an interview. The FSS Long-Term Followup Survey respondent sample includes fielded sample members who responded to the FSS Long-Term Followup Survey.

Sources: Baseline data; FSS Long-Term Followup Survey responses

Comparison of Respondents and Nonrespondents Within the Fielded Sample

Nonresponse bias reflects differences between survey respondents and nonrespondents, which may occur whenever the response rate is less than 100 percent. To identify if the baseline characteristics of respondents differ from those of nonrespondents, logistic regression was employed when an indicator of survey response was regressed on baseline characteristics and an indicator for FSS program status. Exhibit F.2 presents the estimated regression coefficients for the probability of being a survey respondent. The parameter estimate displayed in the second column shows the effect of each characteristic on the probability of completing the survey, and the p-value notes the level of statistical significance. The results reveal that few characteristics had any bearing on survey response. Women and sample members with at least some debt at baseline were both more likely to respond to the survey.⁴ Although the more highly educated were also more likely to respond, sample members that enrolled in FSS with a trade license or

⁴ The reference group for comparisons by debt level is sample members who enrolled in the FSS program with no debt.

certificate were less likely to do so. Lastly, being employed 7 to 11 months in the year prior to study enrollment decreased the probability of responding to the survey.

Exhibit F.2. Estimated Regression Coefficients of the Probability of Being a Respondent to the FSS Long-Term Followup Survey, FSS Long-Term Followup Survey Fielded Sample

Variable	Parameter Estimate	P-Value
Intercept	- 0.994	0.078
Assigned to FSS Group (impact)	0.050	0.684
<u>Sample member characteristics</u>		
Female	0.568	0.012
Age 18–34	0.129	0.502
Age 35–44	- 0.140	0.412
Married or cohabitating	- 0.045	0.858
Black	- 0.054	0.744
1 child	0.093	0.641
2 children	- 0.296	0.149
3 or more children	- 0.258	0.241
Has a child aged 5 or younger	0.115	0.480
<u>Education</u>		
High school diploma or GED	0.508	0.005
Some college	0.802	< 0.0001
2-year college degree or higher	0.687	0.002
Has trade license or training certificate	- 0.219	0.091
<u>Public assistance</u>		
Received SNAP/food stamps	0.247	0.144
Received SSI or SSDI	- 0.302	0.149
Received TANF	- 0.086	0.674
<u>Housing assistance</u>		
Received Housing Choice Voucher less than 4 years	- 0.085	0.576
Received Housing Choice Voucher 4–7 years	- 0.044	0.789
<u>Hardship and barriers to employment</u>		
Has any barrier to employment	0.220	0.113
Reported 1 hardship in the year before random assignment	- 0.034	0.842
Reported 2 hardships in the year before random assignment	- 0.130	0.496
Reported 3 or more hardships in year before random assignment	- 0.040	0.814
<u>Employment</u>		
Currently employed	0.058	0.783
Currently employed full-time	- 0.081	0.673
Employed 1–6 months in the year before random assignment	- 0.191	0.341
Employed 7–11 months in the year before random assignment	- 0.728	0.002
Employed 12 months in the year before random assignment	- 0.300	0.222
<u>Head-of-household earnings</u>		
\$1–\$5,000	0.067	0.828
\$5,001–\$7,500	0.420	0.222
\$7,501–\$10,000	0.107	0.757
\$10,001–\$12,500	- 0.155	0.648
\$12,501–\$15,000	0.080	0.807
\$15,001–\$17,500	0.283	0.395

Variable	Parameter Estimate	P-Value
\$17,501–\$20,000	0.248	0.434
\$20,001–\$22,500	0.347	0.367
\$22,501–\$25,000	0.437	0.268
\$25,001–\$30,000	0.373	0.243
\$30,001–\$35,000	0.689	0.095
\$35,001–\$70,000	0.330	0.419
<u>Enrollment</u>		
Randomly assigned in quarter 4, 2013	0.004	0.992
Randomly assigned in quarter 1, 2014	– 0.109	0.538
Randomly assigned in quarter 2, 2014	– 0.197	0.240
Housing Authority of the City of Alameda	0.513	0.257
Orange County Housing Authority	– 0.035	0.939
Housing Authority of the City of Riverside	0.097	0.825
Housing Authority of the City of Deerfield Beach	0.836	0.196
Housing Authority of the City of Fort Lauderdale	0.488	0.325
Baltimore County Office of Housing	0.181	0.713
Housing Opportunities Commission of Montgomery County	0.341	0.472
Housing Authority of Kansas City	0.122	0.804
Jersey City Housing Authority	0.607	0.277
Akron Metropolitan Housing Authority	0.056	0.923
Columbus Metropolitan Housing Authority	– 0.001	0.998
Lucas Metropolitan Housing Authority	0.077	0.898
Youngstown Metropolitan Housing Authority	0.182	0.755
Dallas Housing Authority	0.165	0.727
Fort Worth Housing Authority	0.943	0.103
Houston Housing Authority	0.121	0.793
Tarrant County Housing Assistance Office	0.003	0.995
Enrolled in FSS for help with employment	– 0.153	0.308
<u>Medical coverage</u>		
Public medical insurance	0.030	0.870
Private medical insurance	– 0.146	0.512
<u>Savings</u>		
Had checking or savings account	0.091	0.540
Had savings between \$1–\$500	0.210	0.157
Had savings greater than \$500	– 0.015	0.947
<u>Debt</u>		
\$1–\$1,000	0.427	0.059
\$1,001–\$5,000	0.807	< 0.0001
\$5,001–\$10,000	0.706	0.002
\$10,001–\$20,000	0.484	0.017
\$20,001 or greater	0.699	0.001
Likelihood ratio	111.5	0.002
Wald statistic	99.4	0.015
R-square (0.0843)		
Sample size	1,284	

FSS = Family Self-Sufficiency. GED = General Educational Development. SNAP = Supplemental Nutrition Assistance Program. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income. TANF = Temporary Assistance for Needy Families.

Sources: MDRC calculations using baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; responses to the FSS Long-Term Followup Survey

The p-values for the model presented at the bottom of Exhibit F.2 show that the differences in sample member characteristics between the respondents and nonrespondents are statistically significant. However, the R-square value of .0843 suggests that the baseline characteristics included in the model account for little of the variation in survey response. The parameter estimate for the FSS program status flag was also not significant, suggesting that research group status did not influence the likelihood of responding to the survey. Both findings imply that the survey results are not biased.

Exhibit F.3 compares baseline traits for households in the respondent and nonrespondent samples to identify any potential divergence in their characteristics. Households in the respondent sample were more likely to have children ages 0 to 2 and were less likely to have children ages 13 to 17. Respondents were also more likely to have reported at baseline that they or another household member had experienced financial hardships that made them delay or forgo purchases of food or prescription medicines in the year prior to enrollment. Households of nonrespondents were more likely to have more than one adult. Nonrespondent households were also less likely to have English as the primary language spoken in the home. However, overall, little variation exists in the baseline characteristics of the households in the two samples, and few differences are statistically significant.

Exhibit F.3. Baseline Characteristics of Households in the FSS Long-Term Followup Survey Fielded Sample, by Survey Respondent Status

Characteristic	Respondent	Nonrespondent	Total	
Average number of household members ^a	3.2	3.4	3.3	
Average number of adults in household ^a	1.4	1.5	1.5	*
Households with more than one adult (%)	31.8	37.0	33.8	*
Average number of children in household	1.8	1.9	1.8	
Number of children in household (%)				
0	23.1	24.7	23.8	
1	21.9	18.1	20.4	
2	24.9	26.4	25.5	
3 or more	30.1	30.8	30.4	
For households with children, age of youngest child (%)				
0–2 years	22.5	16.5	20.2	***
3–5 years	19.7	23.0	20.9	
6–12 years	43.5	39.6	42.0	
13–17 years	14.4	20.9	16.8	
Primary language spoken at home is English (%)	95.4	88.8	92.9	***
Receives TANF (%)	14.8	17.8	15.9	
Receives food stamps/SNAP (%)	70.9	69.0	70.2	
Length of time receiving Section 8 Housing Choice Voucher (%)				
Less than 1 year	4.6	4.9	4.7	
1–3 years	27.2	27.8	27.4	
4–6 years	23.6	21.9	22.9	
7–9 years	15.9	14.9	15.5	
10 years or more	28.8	30.5	29.4	

Characteristic	Respondent	Nonrespondent	Total	
Total household income (%)				
\$0	4.0	4.8	4.3	
\$1–\$4,999	19.1	15.5	17.7	
\$5,000–\$9,999	18.2	19.0	18.5	
\$10,000–\$14,999	17.8	18.0	17.9	
\$15,000–\$19,999	13.3	16.1	14.4	
\$20,000–\$24,999	11.8	10.7	11.4	
\$25,000–\$29,999	8.5	8.3	8.4	
\$30,000 or more	7.3	7.6	7.4	
Payment for rent and utilities (%)				
\$0	2.2	2.0	2.1	
\$1–\$99	6.7	5.1	6.1	
\$100–\$199	9.8	9.8	9.8	
\$200–\$299	11.6	9.4	10.7	
\$300–\$399	13.7	13.1	13.5	
\$400–\$499	11.9	9.6	11.1	
\$500–\$599	9.4	11.5	10.2	
\$600–\$699	8.4	8.2	8.3	
\$700–\$799	6.6	7.0	6.7	
\$800–\$899	3.8	5.9	4.6	
\$900–\$999	3.7	3.7	3.7	
\$1,000 or more	12.2	14.7	13.2	
During the past 12 months, household experienced at least one financial hardship (%)	59.8	58.2	59.2	
Not able to buy prescription drug	14.6	10.4	13.0	**
Not able to buy food	30.1	23.9	27.7	**
Not able to pay telephone bill	28.4	30.2	29.1	
Not able to pay rent	19.2	19.4	19.2	
Not able to pay utility bill	42.3	44.9	43.3	
Sample size	791	493	1,284	

FSS = Family Self-Sufficiency. SNAP = Supplemental Nutrition Assistance Program.

TANF = Temporary Assistance for Needy Families.

^a Maximum response option for number of adults in a household is four.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent.

*** Statistical significance level of 1 percent.

Notes: The FSS Long-Term Followup Survey fielded sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, were ages 18 to 61 at the time of random assignment, and were randomly selected to be interviewed for the FSS Long-Term Followup Survey. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by respondent status. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent for questions that allow more than one response.

Sources: MDRC calculations from baseline data; responses to the FSS Long-Term Followup Survey

The baseline characteristics of heads of households in the respondent and nonrespondent samples in exhibit F.4 also reveal some statistically significant differences. Survey respondents were more likely to self-identify as women, to be under the age of 35 at the time of random assignment, and to have enrolled in the study with a higher educational degree or credential.

They were also more likely to be U.S. citizens than those in the nonrespondent sample and less likely to have had limited English-speaking ability at the time of enrollment.

Exhibit F.4. Baseline Characteristics of Heads of Households in the FSS Long-Term Followup Survey Fielded Sample, by Survey Respondent Status

Characteristic	Respondent	Nonrespondent	Total	
Sample member characteristics				
Female (%)	92.9	87.4	90.8	***
Age (%)				*
19–24 years	2.8	2.0	2.5	
25–34 years	35.4	30.4	33.5	
35–44 years	34.1	37.3	35.4	
45–59 years	26.3	29.8	27.6	
60–61 years	1.4	0.4	1.0	
Average age (years)	39	39	39	
Marital status (%)				
Married, living with spouse	5.9	8.1	6.8	
Married, not living with spouse	6.7	8.9	7.6	
Cohabiting	1.4	1.2	1.3	
Single, widowed, or divorced	86.0	81.7	84.3	
Citizenship status (%)				***
U.S.-born	91.7	82.0	88.0	
Naturalized	6.6	10.2	8.0	
Noncitizen	1.7	7.8	4.0	
Race/ethnicity (%) ^a				*
Black, non-Hispanic/Latino	74.6	71.2	73.3	
Hispanic/Latino	15.8	17.4	16.4	
White, non-Hispanic/Latino	6.8	6.3	6.6	
Native American	0.3	0.4	0.3	
Asian	0.8	2.8	1.6	
Other	0.1	0.4	0.2	
Multiracial	1.6	1.4	1.6	
Education				
Highest degree or diploma earned (%)				***
GED certificate	3.4	2.3	3.0	
High school diploma	9.1	12.3	10.3	
Some college or received technical/trade license	58.2	51.7	55.8	
Associate's or 2-year college degree	10.4	10.1	10.3	
4-year college or graduate degree	7.3	3.3	5.8	
None of the above	11.5	20.3	14.9	
Has trade license or training certificate (%)	48.8	48.9	48.8	
Employment status				
Currently employed (%)	56.5	55.8	56.2	
Regular job	48.0	49.1	48.4	
Self-employed	4.3	3.9	4.1	
Temporary or seasonal job	4.2	2.7	3.6	

Characteristic	Respondent	Nonrespondent	Total	
Currently working 35 hours or more per week (%)	30.1	30.1	30.1	
Average hours worked per week	18.5	18.3	18.4	
Average weekly earnings (\$)	213	209	212	
<u>Barriers to employment</u>				
Has any problem that limits work (%)	41.2	36.9	39.6	
Physical health	18.4	17.9	18.2	
Emotional or mental health	7.5	7.6	7.6	
Childcare access or cost	19.9	14.1	17.7	***
Need to care for disabled household member	6.3	8.1	7.0	
Previously convicted of a felony	7.1	5.9	6.7	
Limited English-speaking ability (%)	1.6	5.9	3.3	***
Does not have access to transportation for employment (%)				
No public transportation access	17.8	20.0	18.7	
No automobile access	16.9	18.4	17.4	
<u>FSS program</u>				
Heard of escrow before random assignment (%)	46.3	38.1	43.2	***
Interest in FSS services related to (%)				
Job-related services	69.8	72.4	70.8	
Social services	31.6	30.9	31.3	
Financial services	95.7	94.9	95.4	
Sample size	791	493	1,284	

FSS = Family Self-Sufficiency. GED = General Educational Development.

^a Maximum response option for number of adults in a household is four.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS Long-Term Followup Survey fielded sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, were ages 18 to 61 at the time of random assignment, and were randomly selected to be interviewed for the FSS Long-Term Followup Survey. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by respondent status. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent for questions that allow more than one response.

Sources: MDRC calculations from baseline data; responses to the FSS Long-Term Followup Survey

Lastly, survey respondents were more likely to have heard of escrow prior to enrolling in the FSS program and to cite childcare concerns as an obstacle to employment. Despite these differences, the characteristics of heads of households in the two samples are generally similar and corroborate evidence provided by the logistic regression that the survey results are not biased.

Comparison of the Research Groups in the Survey Respondent Sample

Response bias may exist if background characteristics differ between the research groups. A logistic regression analysis was performed to test whether certain baseline characteristics were more highly associated with FSS group status in the respondent sample. Exhibit F.5 shows that some baseline characteristics were significantly related to FSS group status. Being a woman, holding a 2-year degree or higher, having debt between \$1 and \$1,000, and being a Supplemental

Nutrition Assistance Program recipient were found to have a positive and statistically significant relationship with FSS group status, whereas being employed 1 to 6 months in the year leading up to random assignment had a negative and statistically significant relationship. However, the results show these instances are the exception, and that no statistically significant relationship between baseline characteristics and FSS group status is much more common. Moreover, the p-values for the model are not statistically significant, and the R-square value of .0864 suggests that the baseline characteristics in the model have minimal association with research group status in the respondent sample.

Exhibit F.5. Estimated Regression Coefficients of the Probability of Being an FSS Group Member, FSS Long-Term Followup Survey Fielded Sample

Variable	Parameter Estimate	P-Value
Intercept	- 1.145	0.132
<u>Sample member characteristics</u>		
Female	0.773	0.019
Age 18–34	0.047	0.846
Age 35–44	0.144	0.521
Married or cohabitating	0.325	0.333
Black	- 0.149	0.488
1 child	0.074	0.765
2 children	- 0.363	0.181
3 or more children	- 0.241	0.392
Has a child aged 5 or younger	0.278	0.161
<u>Education</u>		
High school diploma or GED	0.142	0.575
Some college	0.292	0.223
2-year college degree or higher	1.067	0.000
Has trade license or training certificate	0.186	0.245
<u>Public assistance</u>		
Received SNAP/food stamps	0.388	0.073
Received SSI or SSDI	- 0.018	0.947
Received TANF	- 0.340	0.180
<u>Housing assistance</u>		
Received Housing Choice Voucher less than 4 years	- 0.064	0.738
Received Housing Choice Voucher 4–7 years	0.217	0.311
<u>Hardship and barriers to employment</u>		
Has any barrier to employment	- 0.243	0.165
Reported 1 hardship in the year before random assignment	0.000	1.000
Reported 2 hardships in the year before random assignment	- 0.127	0.594
Reported 3 or more hardships in year before random assignment	- 0.058	0.788
<u>Employment</u>		
Currently employed	0.186	0.504
Currently employed full-time	- 0.013	0.960
Employed 1–6 months in the year before random assignment	- 0.439	0.080

Variable	Parameter Estimate	P-Value
Employed 7–11 months in the year before random assignment	– 0.237	0.445
Employed 12 months in the year before random assignment	– 0.428	0.180
<u>Head-of-household earnings</u>		
\$1–\$5,000	0.276	0.505
\$5,001–\$7,500	– 0.019	0.965
\$7,501–\$10,000	– 0.221	0.640
\$10,001–\$12,500	– 0.171	0.701
\$12,501–\$15,000	– 0.517	0.233
\$15,001–\$17,500	– 0.620	0.147
\$17,501–\$20,000	– 0.216	0.592
\$20,001–\$22,500	– 0.531	0.262
\$22,501–\$25,000	– 0.026	0.956
\$25,001–\$30,000	– 0.488	0.217
\$30,001–\$35,000	– 0.921	0.072
\$35,001–\$70,000	– 0.628	0.224
<u>Enrollment</u>		
Randomly assigned in quarter 4, 2013	0.307	0.558
Randomly assigned in quarter 1, 2014	0.072	0.744
Randomly assigned in quarter 2, 2014	0.028	0.895
Housing Authority of the City of Alameda	0.504	0.382
Orange County Housing Authority	0.709	0.257
Housing Authority of the City of Riverside	– 0.042	0.942
Housing Authority of the City of Deerfield Beach	0.236	0.749
Housing Authority of the City of Fort Lauderdale	0.714	0.261
Baltimore County Office of Housing	0.909	0.155
Housing Opportunities Commission of Montgomery County	0.346	0.572
Housing Authority of Kansas City	0.621	0.329
Jersey City Housing Authority	0.988	0.145
Akron Metropolitan Housing Authority	0.794	0.283
Columbus Metropolitan Housing Authority	0.921	0.196
Lucas Metropolitan Housing Authority	0.283	0.713
Youngstown Metropolitan Housing Authority	0.657	0.376
Dallas Housing Authority	0.271	0.659
Fort Worth Housing Authority	0.793	0.244
Houston Housing Authority	0.933	0.124
Tarrant County Housing Assistance Office	0.113	0.851
Enrolled in FSS for help with employment	0.012	0.947
<u>Medical coverage</u>		
Public medical insurance	– 0.356	0.134
Private medical insurance	0.079	0.787
<u>Savings</u>		
Had checking or savings account	0.016	0.935
Had savings between \$1–\$500	0.100	0.597
Had savings greater than \$500	– 0.133	0.654
<u>Debt</u>		
\$1–\$1,000	0.689	0.032

Variable	Parameter Estimate	P-Value
\$1,001–\$5,000	0.056	0.839
\$5,001–\$10,000	0.175	0.557
\$10,001–\$20,000	– 0.147	0.603
\$20,001 or greater	– 0.492	0.103
Likelihood ratio	71.5	0.428
Wald statistic	62.8	0.716
R-square (.0864)		
Sample size	791	

FSS = Family Self-Sufficiency. GED = General Educational Development. SNAP = Supplemental Nutrition Assistance Program. SSDI = Social Security Disability Insurance. SSI = Supplemental Security Income. TANF = Temporary Assistance for Needy Families.

Sources: Baseline data; HUD Inventory Management System/Public and Indian Housing Information Center data; responses to the FSS Long-Term Followup Survey

Comparing baseline characteristics for respondent sample households also uncovers few differences between the two research groups. Exhibit F.6 shows that only differences in the proportion of households with more than one adult and the percentage of households that reported food insecurity in the year prior to enrollment were statistically significant. Similarly, limited statistically significant differences were found between research groups for heads of households in the respondent sample. Exhibit F.7 reveals statistically significant differences only in the proportion of heads of household who were female and type of employment for those who were employed at baseline. The dearth of statistically significant differences between research groups among households and heads of household in the respondent sample in conjunction with the results of the logistic regression provide additional evidence that the survey results are unbiased and reliable.

Exhibit F.6. Baseline Characteristics of Households by Research Group, FSS Long-Term Followup Survey Respondent Sample

Characteristic	FSS Group	Control Group	Total	
Average number of household members ^a	3.3	3.2	3.2	
Average number of adults in household ^a	1.5	1.4	1.4	**
Households with more than one adult (%)	35.3	28.2	31.8	**
Average number of children in household	1.8	1.8	1.8	
Number of children in household (%)				
0	22.8	23.5	23.1	
1	23.8	19.8	21.9	
2	23.3	26.5	24.9	
3 or more	30.0	30.2	30.1	
For households with children, age of youngest child (%)				
0–2 years	23.6	21.3	22.5	
3–5 years	20.4	18.9	19.7	
6–12 years	42.1	44.9	43.5	
13–17 years	13.9	14.9	14.4	
Primary language spoken at home is English (%)	95.8	95.1	95.4	
Receives TANF (%)	15.8	13.8	14.8	
Receives food stamps/SNAP (%)	73.2	68.6	70.9	

Characteristic	FSS Group	Control Group	Total
Length of time receiving Section 8 Housing Choice Voucher (%)			
Less than 1 year	4.5	4.7	4.6
1–3 years	27.2	27.1	27.2
4–6 years	24.4	22.7	23.6
7–9 years	14.7	17.1	15.9
10 years or more	29.2	28.4	28.8
Total household income (%)			
\$0	3.6	4.4	4.0
\$1–\$4,999	18.0	20.2	19.1
\$5,000–\$9,999	21.1	15.3	18.2
\$10,000–\$14,999	19.3	16.3	17.8
\$15,000–\$19,999	13.5	13.2	13.3
\$20,000–\$24,999	10.4	13.2	11.8
\$25,000–\$29,999	7.4	9.6	8.5
\$30,000 or more	6.9	7.8	7.3
Payment for rent and utilities (%)			
\$0	2.5	1.8	2.2
\$1–\$99	6.5	7.0	6.7
\$100–\$199	11.8	7.8	9.8
\$200–\$299	9.8	13.4	11.6
\$300–\$399	14.0	13.4	13.7
\$400–\$499	13.8	10.1	11.9
\$500–\$599	9.5	9.3	9.4
\$600–\$699	7.0	9.8	8.4
\$700–\$799	7.0	6.2	6.6
\$800–\$899	3.0	4.7	3.8
\$900–\$999	3.0	4.4	3.7
\$1,000 or more	12.3	12.1	12.2
During the past 12 months, household experienced			
at least one financial hardship (%)	58.3	61.3	59.8
Not able to buy prescription drug	14.5	14.7	14.6
Not able to buy food	25.7	34.6	30.1 ***
Not able to pay telephone bill	28.9	27.9	28.4
Not able to pay rent	19.2	19.1	19.2
Not able to pay utility bill	42.9	41.6	42.3
Sample size	403	388	791

FSS = Family Self-Sufficiency. SNAP = Supplemental Nutrition Assistance Program.

TANF = Temporary Assistance for Needy Families.

^a Maximum response option for number of adults in a household is four.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS Long-Term Followup Survey respondent sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, were ages 18 to 61 at the time of random assignment, and responded to the FSS Long-Term Followup Survey. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by research group. Rounding may

cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent for questions that allow more than one response.

Sources: MDRC calculations from baseline data; responses to the FSS Long-Term Followup Survey

Exhibit F.7. Baseline Characteristics of Heads of Households, by Research Group, FSS Long-Term Followup Survey Respondent Sample

Characteristic	FSS Group	Control Group	Total
Sample member characteristics			
Female (%)	94.8	91.0	92.9 **
Age (%)			
19–24 years	2.5	3.1	2.8
25–34 years	36.7	34.0	35.4
35–44 years	34.2	34.0	34.1
45–59 years	25.1	27.6	26.3
60–61 years	1.5	1.3	1.4
Average age (years)	39	39	39
Marital status (%)			
Married, living with spouse	6.2	5.7	5.9
Married, not living with spouse	7.9	5.4	6.7
Cohabiting	1.5	1.3	1.4
Single, widowed, or divorced	84.4	87.6	86.0
Citizenship status (%)			
U.S.-born	90.5	93.0	91.7
Naturalized	7.5	5.7	6.6
Noncitizen	2.0	1.3	1.7
Race/ethnicity (%) ^a			
Black, non-Hispanic/Latino	74.4	74.7	74.6
Hispanic/Latino	15.4	16.2	15.8
White, non-Hispanic/Latino	6.9	6.7	6.8
Native American	0.2	0.3	0.3
Asian	0.7	0.8	0.8
Other	0.2	0.0	0.1
Multiracial	2.0	1.3	1.6
Education			
Highest degree or diploma earned (%)			
GED certificate	3.0	3.9	3.4
High school diploma	9.2	9.0	9.1
Some college or received technical/trade license	57.3	59.2	58.2
Associate's or 2-year college degree	12.7	8.0	10.4
4-year college or graduate degree	8.4	6.2	7.3
None of the above	9.4	13.7	11.5
Has trade license or training certificate (%)	49.9	47.7	48.8
Employment status			
Currently employed (%)	55.0	58.0	56.5

Characteristic	FSS Group	Control Group	Total	
Regular job	45.5	50.5	48.0	**
Self-employed	3.5	5.2	4.3	**
Temporary or seasonal job	6.0	2.3	4.2	**
Currently working 35 hours or more per week (%)	28.6	31.7	30.1	
Average hours worked per week	17.5	19.6	18.5	
Average weekly earnings (\$)	199	228	213	
<u>Barriers to employment</u>				
Has any problem that limits work (%)	39.5	43.0	41.2	
Physical health	17.0	19.8	18.4	
Emotional or mental health	6.3	8.8	7.5	
Childcare access or cost	19.5	20.4	19.9	
Need to care for disabled household member	6.7	5.9	6.3	
Previously convicted of a felony	7.7	6.5	7.1	
Limited English-speaking ability (%)	1.2	2.1	1.6	
Does not have access to transportation for employment (%)				
No public transportation access	17.2	18.4	17.8	
No automobile access	17.1	16.6	16.9	
<u>FSS program</u>				
Heard of escrow before random assignment (%)	48.5	44.0	46.3	
Interest in FSS services related to (%)				
Job-related services	70.5	69.1	69.8	
Social services	32.0	31.2	31.6	
Financial services	95.8	95.6	95.7	
Sample size	403	388	791	

FSS = Family Self-Sufficiency. GED = General Educational Development.

^a Chi-square test may not be valid due to small cell sizes.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS Long-Term Followup Survey respondent sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, were ages 18 to 61 at the time of random assignment, and responded to the Long-Term Followup Survey. Sample sizes for specific measures may vary because of missing values. A chi-square test for categorical variables and a t-test for continuous variables were run to determine whether there is a difference in the distribution of the characteristics by research group. Rounding may cause slight discrepancies in calculating sums and differences. Detail may sum to more than 100 percent for questions that allow more than one response.

Sources: MDRC calculations from baseline data; responses to the FSS Long-Term Followup Month Survey

Comparison of Survey Respondents With the Eligible Sample

To test the generalizability of the survey results, impact estimates for employment and earnings, credit, and housing expenditure and subsidy outcomes were compared across the respondent and eligible samples. The results presented in exhibit F.8 are generally consistent across both samples in direction, magnitude, and statistical significance. The direction of the impact differed for only three outcomes, and in each instance, the impact was not statistically significant in either sample. The impacts on the proportion of the sample with a prime or near prime 2021

VantageScore and the average change in VantageScore from 2012 through 2021 were statistically significant for the respondent sample but not the eligible sample. Minor discrepancies in the number of statistically significant results can occur when reviewing multiple outcomes. However, for both outcomes, the direction of the impact is the same for both samples, and the magnitude of the impacts are not drastically different. Despite some noted differences, the consistency of the results across both samples provides confidence that the results of the Long-Term Followup Survey are generalizable to the eligible sample.

Exhibit F.8. Comparison of Impacts on Selected Outcomes in Years 1 to 6, FSS Long-Term Followup Survey Eligible, Fielded, and Respondent Samples

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Employment and earnings outcomes in years 1 to 6</u>				
Ever employed (%)				
Eligible sample	88.5	86.8	1.6	0.144
Fielded sample	88.0	87.4	0.6	0.693
Survey respondents	88.2	88.5	- 0.3	0.896
Average quarterly employment rate (%)				
Eligible sample	64.5	64.3	0.2	0.858
Fielded sample	64.8	64.2	0.6	0.700
Survey respondents	65.9	64.6	1.4	0.500
Total earnings (\$)				
Eligible sample	95,139	95,447	- 309	0.902
Fielded sample	94,910	93,668	1,242	0.722
Survey respondents	96,325	96,792	- 467	0.921
Average annual earnings greater than \$25,000 (%)				
Eligible sample	24.8	25.7	- 0.9	0.554
Fielded sample	24.9	24.9	0.0	0.996
Survey respondents	25.0	25.5	- 0.6	0.839
<u>Credit scores and credit use</u>				
Average VantageScore, 2021				
Eligible sample	605	607	- 2	0.504
Fielded sample	600	602	- 2	0.691
Survey respondents	602	608	- 6	0.318
Has near-prime or prime VantageScore, 2021 (%)				
Eligible sample	23.7	24.7	- 1.1	0.524
Fielded sample	20.8	22.7	- 1.8	0.413
Survey respondents	19.9	25.6	- 5.7 *	0.061
Average change in VantageScore, 2012 to 2021				
Eligible sample	55	57	- 2	0.538
Fielded sample	49	58	- 8 *	0.098
Survey respondents	53	64	- 11 *	0.096
Total debt (traditional and alternative financial services), 2021 (\$)				
Eligible sample	24,390	23,754	635	0.608
Fielded sample	23,356	21,168	2,188	0.157
Survey respondents	25,780	23,243	2,537	0.224

Outcome	FSS Group	Control Group	Difference (Impact)	P-Value
<u>Housing expenditures and subsidies in years 1 to 6</u>				
Enrolled in Housing Choice Voucher Program, end of year 6 (%)				
Eligible sample	66.1	65.7	0.5	0.804
Fielded sample	67.8	68.4	- 0.7	0.796
Survey respondents	72.2	73.8	- 1.6	0.611
Total family share, years 1 to 6 (\$)				
Eligible sample	30,472	29,089	1,383 **	0.044
Fielded sample	30,966	28,876	2,090 **	0.031
Survey respondents	31,556	29,370	2,186 *	0.084
Total housing assistance payments, years 1 to 6 (\$)				
Eligible sample	51,131	51,402	- 270	0.789
Fielded sample	51,827	52,215	388	0.784
Survey respondents	53,737	53,231	505	0.780
Sample sizes				
Eligible sample (total = 2,495)	1,257	1,238		
Fielded sample (total = 1,279)	642	637		
Respondent sample (total = 789)	402	387		

FSS = Family Self-Sufficiency.

* Statistical significance level of 10 percent. ** Statistical significance level of 5 percent. *** Statistical significance level of 1 percent.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. The FSS Long-Term Followup Survey eligible sample includes FSS impact sample heads-of-household who could be interviewed, if successfully contacted (excluding impact sample members who had died, were incarcerated, were institutionalized, or did not speak English or Spanish). The FSS Long-Term Followup Survey fielded sample includes members of the eligible sample who were randomly selected for an interview. The FSS Long-Term Followup Survey respondent sample includes fielded sample members who responded to the FSS Long-Term Followup Survey. Average quarterly employment rate is calculated as: total quarters with employment divided by total quarters of followup, expressed as a percentage. Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members. Sample sizes may vary for some measures because of missing values. Rounding may cause slight discrepancies in calculating sums and differences. A two-tailed t-test was applied to differences between research groups. The p-value indicates the likelihood that the difference between the FSS group and control group arose by chance.

Sources: MDRC calculations using baseline data; housing agency administrative data; quarterly wage data from the National Directory of New Hires; Experian Vantage 3.0 credit scores and Clarity Clear Early Risk credit scores; HUD Inventory Management System/Public and Indian Housing Information Center data

Appendix G

Exhibit G.1. Estimated Costs of the Family Self-Sufficiency and Housing Choice Voucher Programs (in 2020 Dollars) From the Perspectives of the Government Budget and of FSS Group Members, FSS Impact Sample

Outcome	FSS Group	Control Group	Difference	Cost by Perspective
<u>Government budget perspective</u>				
FSS program				- 6,062
Escrow disbursements	2,033	—	2,033	- 2,033
Administrative costs	4,029	—	4,029	- 4,029
Housing Choice Voucher program				555
Family share	35,188	33,756	1,432	1,432
Housing subsidies	60,392	59,581	810	- 810
Utilities reimbursements	591	550	41	- 41
Administrative costs	4,811	4,785	26	- 26
Total				- 5,508
<u>FSS group member perspective</u>				
FSS program				2,033
Escrow disbursements	2,033	—	2,033	2,033
Housing Choice Voucher program				- 581
Family share	35,188	33,756	1,432	- 1,432
Housing subsidies	60,392	59,581	810	810
Utilities reimbursements	591	550	41	41
Total				1,452
Sample size (total = 2,548)	1,281	1,267		

FSS = Family Self-Sufficiency.

Notes: The FSS impact sample includes housing choice voucher heads of household who were randomly assigned between October 18, 2013, and December 22, 2014, and were ages 18 to 61 at the time of random assignment. Rent and subsidy calculations used data from each household's Housing Choice Voucher annual and interim eligibility reexaminations. Recorded amounts were copied to successive months until a new eligibility reexamination took place or the household left housing assistance. Cumulative totals for former housing choice voucher households cover their months of eligibility following random assignment. For each dollar amount outcome, values above the 99th percentile were considered outliers and dropped from the calculations. As a result of this procedure, mean values for total family share and subsidies detail do not sum to total rent plus utility allowance. No tests of statistical significance were performed on differences between research groups in means or proportions. Sample sizes for specific outcomes may vary because of missing values. Rounding may cause slight discrepancies in calculating sums and differences.

Sources: Housing agency administrative and cost data; HUD Inventory Management System/Public and Indian Housing Information Center data

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