



Interim Cost-Benefit Analysis of the Compass Family Self- Sufficiency (FSS) Program

Final

December 21, 2017

Prepared for:

Compass Working Capital

89 South Street, Suite 804

Boston, MA 02111

and

**U.S. Department of Housing and
Urban Development**

PD&R, Office of University

Partnerships

451 7th Street, SW, Rm 8226,

Washington, DC 20410

Submitted by:

Abt Associates

4550 Montgomery Avenue

Suite 800 North

Bethesda, MD 20814

Samuel Dastrup

Lesley Freiman

Jeffrey Lubell

Micah Villarreal

Daniel Weiss

Contents

Executive Summary ii

1. Introduction..... 1

 1.1 Program Context 4

 1.2 Structure of this Report 5

2. Methodology and Framework 6

3. Costs of Administering Compass FSS..... 14

 3.1 Compass FSS Costs per Participant 14

 3.2 Lynn and Cambridge PHA Costs per Participant..... 16

 3.3 Total Cost per Participant of Compass FSS Programs..... 17

4. Impacts on Participant Earnings, Credit, and Debt 18

5. Impacts on Tax Liabilities, Public Income Support, and Public Benefits 20

6. Net Costs and Benefits of the Compass FSS Program..... 29

7. Conclusion 34

References..... 35

Executive Summary

What we studied

This report examines the costs and benefits of the Compass FSS program, an initiative to help households with Housing Choice Vouchers in Lynn and Cambridge, Massachusetts make progress toward economic security. The initiative is administered by the nonprofit Compass Working Capital in partnership with public housing authorities (PHAs) in each city.

Housing Choice Vouchers are a form of federal rental assistance funded by the U.S. Department of Housing and Urban Development (HUD), and Compass FSS represents a local implementation of a national HUD program called Family Self-Sufficiency (FSS). FSS is a voluntary program open to households participating in one of three HUD rental assistance programs who generally pay 30 percent of their income for rent and utilities. Households that enroll in the Compass FSS program participate in financial education workshops and receive financial coaching to help them identify and make progress toward personal goals in the areas of employment, credit, debt, budgeting and financial services. Participating households also benefit from an escrow account that grows as their earnings and required contribution to rent increase. The escrow account helps participants build assets and also functions as an incentive for them to increase their earnings.

This report builds on the findings of an earlier report we prepared (Geyer et al. 2017) that found that Compass FSS produced strong gains in annual household earnings, averaging \$6,305 per participating household, as well as improvements in credit scores and reductions in credit card and derogatory debt.

What we found

The Compass FSS programs in Lynn and Cambridge, Massachusetts produced a **net benefit of \$10,069 per participant** over the course of the five-year study period. This figure represents the sum of the costs and benefits to: (a) the government and other funders of the program and (b) families participating in the program.

Since most of the Compass FSS participants studied were still in the program at the end of the analysis period, this report represents only an “interim” analysis of the costs and benefits of Compass FSS.

As the program participants complete the FSS program, we expect that the net benefit of the program would grow. The costs of the Compass FSS program are generally all incurred during the first five years of enrollment (or less, for households leaving or graduating in fewer than five years). By contrast, the benefits, including increased earnings and financial stability, and the associated decreased costs to the government of public assistance, are likely to continue beyond the end of program participation. As a result, we expect that a comprehensive cost-benefit analysis that considers these future benefits would find an even larger net benefit of the program.

Exhibit ES-1 shows the average net costs and benefits per participant during the 2011 to 2015 period. In reporting these estimates, we have listed all estimates in one of two columns. “Costs” are items that

Net Costs and Benefits of Compass FSS Over Five-Year Study Period per Participant:

Costs/Benefits to Government/Program: –
(\$276)

Costs/Benefits to
Participants: **+ \$10,345**

Total net effects: + \$10,069

contribute to the cost of the program to the government and other funders or decrease the benefit of the program to participants and “benefits” are items that offset the program’s cost or increase the benefit to participants. Placing the items in these two columns allows them to be summed across categories to produce a net average cost or benefit of the program during the time period studied.

Exhibit ES-1: Summary of interim cost-benefit analysis findings, January. 2011- December 2015

	Cost	Benefit
<u>Government/Program Perspective (per participant, over 5 years)</u>		
1. Total program costs (Compass + PHAs):	\$8,616	
2. Net increase in tax revenue:		\$830
3. Net decrease in non-housing income supports & benefits paid:		\$6,240
4. Net change in housing assistance expenditures		
a. Deposits into escrow account:	\$2,040	
b. Reduction in housing assistance payments to landlords:		\$3,310
<i>Net effect of program on government/program expenditures:</i>	\$276	
<u>Participant Perspective (per participant, over 5 years):</u>		
1. Increase in earnings and other income:		\$17,490
2. Net decrease in tax liability:		\$365
3. Net decrease in non-housing income supports & benefits received:	\$6,240	
4. Net change in housing assistance benefits		
a. Savings in escrow accounts:		\$2,040
b. Reduction in housing assistance benefits:	\$3,310	
<i>Net effect of program on participants:</i>		\$10,345

The following is a brief summary of the costs and benefits reflected in the exhibit:

Government / program perspective: The Compass FSS program had a **net cost to the government/program of \$276 per participant** over the course of the five-year study period. This reflects the net of the following costs and benefits:

1. The cost to Compass and their public housing authority partners of administering the Compass FSS program
2. Increases in taxes paid by or on behalf of Compass FSS participants (due in large part to increases in the employer portion of participants’ payroll taxes)
3. Decreases in non-housing public benefits paid to Compass FSS participants through such programs as TANF and Social Security

4. The net change in housing assistance expenditures for each participant. This is equal to (a) the deposits made into FSS participants’ escrowed savings accounts minus (b) the offsetting reduction in housing assistance payments the PHA makes to participants’ landlords.¹

Participant perspective. The Compass FSS program produced a **net benefit of \$10,345** per participant over the course of the five-year study period. This reflects the net outcome of the following costs and benefits:

1. Increases in earnings by Compass FSS participants and other changes in income
2. A decrease in income tax liability (due in substantial part to the Earned Income Tax Credit and Child Tax Credit)
3. A reduction in non-housing public benefits from such programs as TANF and Social Security
4. The net change in a participant’s housing assistance benefits. This is (a) the growth in assets from accrued savings in participants’ FSS escrow accounts minus (b) the offsetting reduction in housing assistance payments the PHA makes to participants’ landlords.

Exhibit ES-2 displays another way of arriving at the same result. As indicated in this exhibit, the net effect of public benefits is \$0 since the government savings are fully offset by a loss of income to the participant. The net effects of Housing Assistance Payments (HAP) and the escrow are both \$0 since the cost to the government is offset by a corresponding benefit to the participant.

Exhibit ES-2. Summary of Total Net Benefit Calculation (January 2011- December 2015)

<i>Program Cost</i>	+	<i>Income gains</i>	+	<i>Taxes</i>	+	<i>Net public benefits</i>	+	<i>Net HAP</i>	+	<i>Net escrow</i>
-\$8,616		\$17,490		\$1,195		\$0		\$0		\$0
= \$10,069 per participant										

How we conducted the study

To estimate the costs and benefits of the Compass FSS program, we use HUD administrative data, tax estimation software, and public benefit eligibility rules to estimate each cost and benefit item for each household in two groups: (1) Compass FSS participants and (2) a group of comparison households selected through a statistical technique known as propensity scores. We then use another statistical technique – a linear regression model – to compare the average result for the Compass FSS households to the average result for the matched comparison households and determine the net cost or benefit associated with Compass FSS.

¹ In a standard FSS program for Housing Choice Voucher holders, the deposits into the FSS escrow account are mostly or entirely offset by reductions in housing assistance payments to participants’ landlords, rendering the net change in housing assistance expenditures close to zero. While the Lynn FSS program follows the standard FSS escrow model, the Cambridge FSS program utilizes a different escrow formula, adopted under its authority as a Moving to Work Agency. As a result, these items only partially offset each other in our calculations. From the government / program perspective, the benefit from reductions in HAP exceed the cost of the escrow contributions, in large part because of Cambridge’s non-standard escrow formula.

Our analysis focuses on the 2011 to 2015 period for which we have HUD administrative data. As with the prior study of Compass FSS (Geyer et al. 2017), we focus solely on Compass FSS participants that have a Housing Choice Voucher (HCV) and did not exit the HCV program during the analysis period. This allows us to use HUD administrative data to develop the individual-level estimates for this analysis. Our analysis includes all Compass FSS participants that meet these criteria, regardless of whether they have graduated, withdrawn without graduating, or remain in the program.

Compass FSS participants joined the FSS program at different times and, on average, were in the Compass FSS program for 2.7 years during the five-year study period. Rather than following Compass FSS households only during their participation in the program, however, we track all households over a single period of time because of the propensity score matching technique we used to select comparison households. To address some challenging modeling issues, we determined that it was preferable to select all comparison households at a single time, rather than selecting new comparison households each time a Compass FSS participant joined the program. Since the costs and benefits are calculated over a five-year frame but Compass FSS participants were in the program for an average of 2.7 years during this time, the final aggregate results are best understood by looking at the net costs and impacts over the full five-year time period.

A few other notes on the study's methodology:

- Unlike the other cost items, which are estimated using participant-level data, we estimate the average cost of administering the Compass FSS program by calculating the total program costs and dividing by the overall number of Compass FSS participants in order to derive a per-participant per-year cost.
- Except for the estimates of tax liability, all of the impacts estimates in Exhibit ES-1 that are derived from the linear regression model are statistically significant at the .01, .05 or .10 levels. See the main body of this report for the significance levels of each estimate.

Limitations of the analysis

As noted above, this cost-benefit analysis is interim in the sense that it reflects the estimated impact of the Lynn and Cambridge FSS programs through December 31, 2015, at which time participants had been enrolled, on average, for 2.7 years. We do not attempt to predict future benefits of FSS to participants that remain in the program after that date, the costs of continued administration of the program during that additional time period, savings to the government associated with participants' ongoing participation, or sustained benefits to participants after they leave the FSS program—for example, through sustained increased in earnings.

We also do not consider a number of factors that would be useful to study in a future comprehensive analysis: (a) the benefits to participants of having higher credit scores and lower levels of credit card and derogatory debt; (b) the long-term or secondary impacts of the program, such as the effects on children of parents increasing earnings and assets or the effects of the participants' investment of escrowed funds; (c) effects on people other than Compass FSS participants; and (d) technical adjustments that would be included in a comprehensive cost-benefit analysis.

See the body of the report for more details on our methodology, conclusions and the limitations of our study.

1. Introduction

This interim analysis of the costs and benefits of delivering the Compass Family Self-Sufficiency (FSS) program builds on an evaluation of program outcomes published in September 2017 (Geyer et al. 2017). That report provides an overview of Compass's program model and documents outcomes related to FSS participants' earnings, cash benefits, FICO® scores, and debt. The evaluation compares participants' earnings and cash benefits outcomes to those of a matched comparison group that did not have access to the Compass FSS program and found that the program had substantial impacts. It found participation in Compass FSS to be associated with an average gain of \$6,305 in participants' annual household earnings between the 4th quarter of 2010 and the 1st quarter of 2016. The evaluation also found that Compass participants experienced improvements in credit and debt outcomes that exceeded available benchmarks.

Demonstrating that the Compass FSS program has a positive effect on key outcomes is only the first step in determining whether the program should be recommended for continued and broader implementation. Compass FSS is a staff-intensive program, and the cost of administering the program is an important consideration. The changes in earnings and other outcomes will result in changes in net tax liabilities and changes in the receipt of means-tested benefits. The resulting changes in costs to the government and the effects of the Compass FSS program on participants' overall resources are important for assessing the Compass FSS program. This report builds on Geyer et al. (2017) by conducting additional analysis that estimates those costs and benefits for an assessment of the overall net benefit of the program during the five-year period of January 1, 2011 through December 31, 2015. For this analysis, we examine average costs and monetary benefits associated with providing the Compass FSS program *per participant, per year*.²

This report assesses five elements of costs and benefits:

Government / Program Perspective

- 1. *The cost of administering the Compass FSS program.*** This category includes the direct costs of operating the FSS program to Compass Working Capital (including overhead), its partner PHAs, and service partners who provide in-kind services as part of the Compass FSS program.
- 2. *Any immediate savings the government realizes as a result of participants' progress toward economic security.*** This category includes estimates of changes in costs to: (a) federal and state government, from changes in means-tested program participation and benefit levels and (b) federal and state government, from changes in taxes owed.
- 3. *The net change in housing assistance expenditures related to the FSS program.*** This is equal to (a) the deposits made into FSS participants' escrowed savings accounts minus (b) the offsetting reduction in housing assistance payments the PHA makes to participants' landlords.

² Geyer et al. (2017) measure earnings gains through the 1st quarter of 2016. We do not use the final quarter of data for this analysis because tax liabilities and benefit eligibilities are determined based on annual income. The estimate uncertainty introduced by extrapolating annual earnings and benefit eligibility from a single quarter outweighs the benefits of an additional quarter of data. Looking only at earnings impacts through the end of 2015, the estimated impact of Compass FSS is a \$5,636 increase in annual household earnings rather than \$6,305.

When a Compass FSS participant experiences an increase in earnings that increases their adjusted household income,³ three things happen. First, their required contribution to rent goes up, as they are generally required to spend at least 30 percent of their income on rent and utilities. Second, the housing assistance payment made by the housing authority to the landlord goes down by the same amount since the payment covers the difference between what the family pays and the gross rent (rent plus utilities) of the unit, up to a locally determined maximum. Third, a payment is made on behalf of the family into the FSS escrow account. In the Lynn program, the escrow deposits equal the full amount of increased rent due to increased earnings (with some exceptions). For a household that experiences an increase in earnings and no decrease in other income, the escrow will be 30 percent of the household's increased earnings. In Cambridge, where the PHA has adopted a special escrow formula, the FSS escrow is equal to about half of the standard escrow amount.

FSS escrow deposits are placed into a savings account that each PHA maintains on behalf of FSS participants and are only released in full to FSS participants who graduate successfully from the FSS program. Participants may also request partial withdrawals (known as interim disbursements) before graduation if needed to help them achieve their goals. Any escrow funds not disbursed to residents are returned to the program. In this analysis, we include the contributions to the accounts as a cost, with the caveat that completion rates for the Compass FSS program (and therefore rates of escrow receipt or return) are unknown because most participants are still engaged with the program.

Program Participant Perspective

4. ***Changes in participants' annual net income.*** This category includes estimates of changes in income resulting from: (a) earnings growth; (b) changes in non-housing public benefits; and (c) changes in taxes owed or received.
5. ***The net change in a participant's housing assistance benefits.*** This is (a) the growth in assets from accrued savings in participants' FSS escrow accounts minus (b) the offsetting reduction in housing assistance payments the PHA makes to participants' landlords.

This five-element framework allows us to understand the types of primary costs and financial benefits the program brings from the perspective of each type of stakeholder. The primary costs of the program are experienced by government entities (including PHAs) and by Compass, the provider of FSS program services (funded in part by philanthropy). The benefits attributable to participation in the Compass FSS program are experienced by program participants in the form of additional net resources and by the government in the form of reduced expenditures on benefits and increased tax revenue.

³ Adjusted household income is annual household income adjusted for certain deductions and adjustments as defined by applicable regulation.

Limitations of Analysis

This cost-benefit analysis is interim in the sense that it shows the estimated impact of the Lynn and Cambridge FSS programs through December 31, 2015, at which time participants had been enrolled, on average, for 2.7 years. We do not attempt to predict future benefits of FSS to participants that remain in the program beyond that date, the costs of continued administration of the program during the additional time, savings to the government associated with participants' ongoing participation, or sustained benefits to participants after they leave the FSS program—for example, through sustained increases in earnings.

This analysis also has a number of other limitations:

- It focuses on only a limited subset of the likely impacts of the Compass FSS program. In particular, it focuses on the impact of the Compass FSS program on earnings and the receipt of public benefits. It does not attempt to quantify the effects of improvements in credit scores or decreases in high-interest debt that may be associated with participation in Compass FSS.
- It focuses only on the immediate effects of the program on participants' annual income and escrowed savings and does not consider any longer-term effects or secondary impacts of the program, such as effects on the children of participants increasing their earnings and assets or the effects of participants' expenditure of escrowed funds on the purchase of a home, business, or post-secondary education.
- It does not consider the costs and savings associated with other people that interact in the same economic and programmatic ecosystems as Compass FSS participants. For example, the analysis captures the savings to the government associated with a Compass FSS participant receiving reduced housing subsidy but not the likelihood of FSS graduates leaving housing assistance, the costs to the government associated with awarding that voucher to another household, or the benefits of the voucher for the new household. Similarly, the analysis considers increased tax revenue associated with the higher wages of Compass FSS participants but not any decreases in tax revenue that may be associated with the foregone earnings of households that might otherwise get jobs that Compass FSS participants gained.⁴
- It does not make a number of technical adjustments that would be included in a comprehensive cost-benefit analysis. These include estimating changes in government administrative costs associated with changes in benefit receipt, estimating increases in overall economic efficiency that are attributable to reduced government spending, and adjusting participant earnings benefits to include the costs of increased employment (e.g., increased child care, commuting, and other work-related costs and decreased leisure time).

⁴ The overall unemployment rate in our study area was declining during our period, to about 3 percent in Cambridge and 6 percent in Lynn in 2015. Low and falling unemployment rates are consistent with an assumption that increases in earnings and employment by Compass program participants represent higher overall economic activity as opposed to a displacement of other workers. See Boardman et al. (2014) for a further discussion of this “full employment” assumption and other technical details.

1.1 Program Context

Compass administers a number of FSS programs in partnership with PHAs and private owners of multifamily housing. Both this cost analysis and the outcomes evaluation (Geyer et al. 2017) focus on the longest-running Compass FSS programs, collaborations with Lynn Housing and Neighborhood Development (LHAND) in Lynn, Massachusetts, and Cambridge Housing Authority (CHA), in Cambridge, Massachusetts.

Nationwide, more than 600 FSS programs receive HUD grants to cover the costs of one or more FSS program coordinators and several hundred additional PHAs or owners operate an FSS program but do not receive program coordinator grants from HUD. FSS is a very flexible program, and the program intensity and specific features vary substantially from one local FSS program to another. Program impacts and program costs and benefits may vary substantially depending on the program approach.

In this section, we summarize key features of the Compass FSS programs in Lynn and Cambridge. More detail is available in Geyer et al. (2017).

Compass's approach to FSS and implications for program costs

The Compass FSS program, like all FSS programs, provides clients receiving housing assistance with (a) the ability to build escrowed savings based on increased rent paid as a result of increased earnings following enrollment in the program and (b) one-on-one coaching to encourage and support participants in increasing their earnings and achieving other individually identified goals.⁵ In addition, Compass incorporates financial coaching and pre-enrollment workshops into its service model, helping clients to improve their credit scores, pay down debt, access mainstream financial services, and build savings.

Each of these program elements has an associated cost. In this section, we briefly describe how the programmatic and organizational elements of the Compass FSS programs in Lynn and Cambridge might influence the costs of the programs.

Escrow Accounts

- The costs associated with the FSS escrow account include both the cost of escrow deposits on behalf of program participants and the administrative costs of establishing, managing, and disbursing account funds. Because the CHA has a special escrow formula in which most participants receive half of the standard escrow, the costs of escrow deposits will be lower for the Compass FSS program operated in Cambridge.

Program Administration

- Compass runs the FSS programs in partnership with the public housing agencies in Lynn and Cambridge. This partnership may result in costs for Compass (which enrolls families and provides the financial coaching to participants), the public housing agencies (which manage the escrow accounts), and costs to both Compass and the public housing agencies associated with coordination between entities.

⁵ All FSS programs provide case management or coaching to help participants identify goals and overcome barriers to achieving them. The form of this interaction can vary substantially from one local program to another.

- Compass focuses on delivering the FSS program (rather than providing housing assistance) and other related programs as its primary mission, so the Compass FSS program likely carries a relatively higher share of the organization’s administrative overhead (e.g., senior management) than it would in a traditional FSS program.
- Other costs associated with administering the Compass FSS program include training and support for front-line staff (financial coaches), sufficient financial coaching staff to have multiple one-to-one coaching sessions with each FSS participant per year (generally in-person, four times in the first year and twice a year in the following years) and as needed, and materials and personnel for outreach and participant recruitment.

Other cost-benefit analyses of FSS programs

There have been relatively few comprehensive cost-benefit analyses of FSS programs. Verma et al. (2017) found that an FSS program in New York City produced a net financial benefit over a 10-year time horizon of \$6,200 per participant. The FSS program in that study was sufficiently different from the Compass FSS program – and the methodology for the cost-benefit sufficiently different – that we do not think the dollar estimates are directly comparable. Nevertheless, it is useful context for this study.⁶

1.2 Structure of this Report

The following is a brief overview of the structure of the balance of this report:

- Section 2 presents the methodological approach and framework for this interim cost benefit analysis.
- Section 3 details the costs incurred by Compass Working Capital and the partner PHAs for administering the program, including the coaching services provided by Compass, and calculates an estimated program cost-per- participant per year.
- Section 4 reports the estimated impacts of participating in the Compass FSS program on participants’ earnings, credit, and debt.
- Section 5 presents the estimated effects of Compass FSS on government expenditures related to participants’ receipt of means-tested income support and benefits; tax revenue (and tax expenditures such as the Earned Income Tax Credit); and government expenditures related to participation in the Housing Choice Voucher program, including the FSS escrow account.
- Section 6 concludes the analysis with an estimation of net program costs and benefits.
- The Conclusion (Section 7) provides a brief summary of the findings of the cost-benefit analysis and their implications.

⁶ Santiago and Galster (2013) also conduct a cost-benefit analysis of a program that includes FSS participants. However, the specific program they study represents an add-on to the standard FSS program focused on preparing participants for homeownership and thus is not comparable.

2. Methodology and Framework

In this section, we first provide an overview of our approach to measuring the costs of implementing the Compass FSS program for Compass and its partner PHAs. We then review our approach to estimating how the earnings changes associated with Compass FSS program participation affect tax liabilities and receipt of means-tested income support and benefits, including the Housing Choice Voucher program and the escrow account associated with FSS. The section concludes with our approach to estimating the net costs and benefits of the Compass FSS program.

Analyzing the cost of Compass FSS programs

One important element of the cost-benefit analysis is the per-participant, per-year cost of the Compass FSS program. We include costs for both Compass Working Capital, the non-profit that implements the program in partnership with the PHAs, and the PHAs. Costs are comprehensive in that we include all resources used to implement the program: staffing, supplies, facilities, administration, and fundraising. We identified all of the resources used for the program through in-depth interviews during which we reviewed expenditure reports with Compass staff that manage the program and through interviews with PHA staff that track FSS program finances for the PHA's program-related activities.

After identifying the resources used to implement the program, we assigned monetary values to each resource used. We relied on detailed expenditure reports from Compass and reports of estimated actual spending by the PHAs, along with value estimates (for in-kind services) provided by Compass, CHA, and LHAND to assign these monetary values.⁷

The primary source of information on Compass costs was a set of annual Profit and Loss statements that Compass prepared for its Board detailing expenses for program staffing (the FSS coaches), supplies and materials associated with the program (including materials used for client outreach and fees paid to services that pull credit reports), and agency overhead (executive and administrative staff, rent, insurance, IT services, etc.). The Abt team reviewed these reports during interviews with Compass FSS program and financial staff to ensure that all resources used to provide the FSS program were included in the resulting cost estimates.

The primary source of information on PHA costs associated with the FSS program was a series of cost interviews with PHA staff. The interviews reviewed the staffing, materials, and associated overhead costs that PHAs use for their role in administering the FSS program, including administering the escrow accounts.

⁷ An alternative approach would be to independently determine monetary values for all program inputs using average market prices. For example, average industry salary and benefits determined by market research could be used instead of actually incurred costs. This would provide generalized cost estimates for implementing an FSS program using the same resources used in the Compass FSS program in an average market context. We prefer the as-incurred approach in this case because we are focusing on the Compass FSS program as implemented and analyzing the resulting cost estimates in the context of the participant outcome changes for the Compass FSS program specifically.

To arrive at a per-participant annual cost, we summed costs across all categories for each fiscal year (Compass's fiscal year runs from September through August; we used data for FY 2013, 2014, and 2015) and divided by the number of participants in the program for each year. Determining the number of program participants in each year was complicated by the fact that participants engage with the program for multiple years, the program is ongoing, and most participants had not yet exited the program. We elected to include all participants in each year that had not officially exited the program through graduation or termination, based on program administrative records. This approach may somewhat overstate participation if some participants were de facto no longer participating but had not yet formally graduated or been terminated. This would lead to an understatement of per-participant costs (by elevating somewhat the denominator in the calculation).⁸ However, since individuals who had de facto left the program are also included in the estimation of program benefits, we determined this to be a reasonable approach.

Estimating changes to tax liabilities, public income supports, and means-tested benefit receipt

This component of the analysis focuses on average annual per-participant costs and benefits over the study period. We use earnings in each year of the study period, rather than the difference between participants' starting and ending earnings, as the basis for estimating tax liabilities, public income supports, and receipt of benefits in that year at the individual level for each FSS participant and comparison group member. We then use a linear regression model to estimate the average differences between the outcomes for FSS participants and the comparison group to identify changes in these outcomes that are the result of FSS participation. We also use the estimates from the linear regression to generate overall average estimates of each variable for (a) FSS participants as a group and (b) the comparison group.

Changes to net tax liabilities. The changes in earnings associated with participation in the Compass FSS program will result in changes in income and payroll taxes paid by program participants. These changes are important to include in considering both the benefits of the program to participants and the program's net costs to the government. For example, increases in participants' tax liability constitute lower net benefits for participants but additional revenue to the government.

Predictions of how increased earnings affect a participant's net tax liability must take into account that many FSS program participants have a net negative tax liability (receive a net refund) and also have negative marginal income tax rates. This means that, for many participants, instead of creating additional income tax liability, increased earnings may generate increases in after-tax income because of refundable tax credits such as the Earned Income Tax Credit (EITC) and the Additional Child Tax Credit (ACTC). At the same time, increases in earnings will result in increased payroll taxes – with 7.65% of earnings going to fund the employee portion of Social Security and Medicare taxes.

⁸ Some participants have more intensive engagement with the program than others-- for example by self-selecting to have more interaction with coaches or participating in more program workshops. Determining variation in per-participant costs associated with this differential program engagement would require a more intensive and detailed approach for tracking each program activity. This level of tracking and resource review is beyond the scope of this cost-benefit study.

To empirically assess changes in Compass FSS participants' tax liabilities that result from FSS participation, we follow the same methodology used by Geyer et al. (2017) to estimate the impact of FSS on earnings. We compare the estimated tax liability of FSS participants to the estimated tax liability of the comparison households identified through propensity scores in the earlier analysis, using the same regression model that controls for baseline household characteristics. The analysis starts by estimating the tax liability for each household using TAXSIM, the National Bureau of Economic Research program for calculating liabilities under US federal and state income tax laws from individual data.⁹ We use HUD administrative data to develop tax profiles for both participant and comparison group households. These tax profiles include the tax year, participants' marital status, number of dependents, age, own wages and spouse wages (for married participants), social security income, transfer income, and unemployment income. We then match these individual tax profiles to simulated tax liabilities recovered from TAXSIM. This provides estimates of tax liabilities for each Compass FSS participant and comparison group member, including federal and state income tax liability, payroll taxes, and EITC and ACTC amounts.¹⁰ We then apply the regression model that was used by Geyer et al. (2017) to model earnings differences to estimate the impact of Compass FSS participation on tax liabilities by comparing regression-adjusted outcomes for FSS participants and the comparison group in federal and state income taxes, payroll taxes, EITC and ACTC amounts, and the combined net total tax liability.

Changes in public income supports. Changes in employment and earnings that result from participation in Compass FSS will potentially affect participants' receipt of unemployment benefits, Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), and Social Security benefits. We anticipate seeing the largest changes for unemployment and TANF benefits, as FSS participation encourages employment and earnings that directly influence eligibility for these income support programs. SSI and Social Security eligibility is less likely to change, but gains in income will have an effect on the benefit amounts for these programs.

Information on income that participants and comparison group members receive from each of these programs is collected by PHAs to determine Housing Choice Voucher subsidy amounts and reported to HUD using HUD's PIC data system. We use the same regression model approach used by Geyer et al. (2017) to estimate Compass FSS earnings impacts to estimate the impact of FSS participation on income received from these income support programs.

Changes in receipt of other means-tested benefits. Changes in earnings that result from participation in the Compass FSS program may also affect participants' eligibility and benefit levels for a variety of

⁹ We assign monetary variables to round number groups to allow matches to profiles with tax values from the NBER tax simulator. For example annual earnings below \$5,000 are rounded to the nearest \$250, earnings between \$5,000 and \$20,000 are rounded to the nearest \$500, earnings between \$20,000 and \$50,000 are rounded to the nearest \$1,000, earnings between \$50,000 and \$70,000 are rounded to the nearest \$5,000, and earnings over \$70,000 are rounded to the nearest \$10,000. These groups are small enough that the matched tax liabilities from the tax simulator are reasonably accurate. Additionally, because some values are rounded up while others are rounded down, the overall average tax liability for the rounded values will be a good approximation of what average tax liabilities would be for the unrounded values.

¹⁰ See <http://www.nber.org/taxsim/> and Feenberg, Richard, and Coutts (1993) for complete documentation and detail.

means-tested benefits programs that do not provide cash payments to households but nevertheless have a monetary value. Increases in income can result in lower benefit levels or loss of eligibility for benefits from Supplemental Nutrition Assistance (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), State of Massachusetts Income Eligible Vouchers for childcare (Childcare Vouchers), and public health insurance provided by Masshealth (Massachusetts' Medicaid and Children's Health Insurance Program) and by Commonwealth Care (state-subsidized insurance, similar to the federal subsidies provided under the Affordable Care Act for purchase of individual market insurance). As with changes in taxes, changes in benefits received alter both participants' net household financial position and net costs to the government of benefit programs. We expect the total value of public benefits to FSS participants to decrease as a result of increased earnings, representing a savings to the government that may offset some costs of the FSS program.

Unlike earnings and public income supports, on which information is collected as part of annual Housing Choice Voucher income reviews and included in PIC data, we do not have participant-level data for receipt of these non-cash benefits. For SNAP, WIC, publicly funded health insurance receipt, and Childcare Vouchers, we use observed income and family size in the PIC data to estimate program eligibility and, for all but the Childcare Voucher, assistance amounts at the individual level for both FSS participants and comparison households.¹¹ Exhibit 2-1 details the sources we used for program eligibility and benefit schedules and the assumptions used to make these individual, per household, calculations. For each benefit, we then apply the same regression model used in the earnings impact analysis (Geyer et al. 2017) and the analyses of tax liabilities and public income supports in this cost-benefit analysis to estimate average differences in benefit receipt associated with Compass FSS participation.

¹¹ We find a small and statistically insignificant difference in eligibility for childcare vouchers between FSS program participants and comparison households. These vouchers are limited by government budget constraints, and we do not have data on the frequency of their receipt for our study sample. As a result, we do not include this cost to the government or benefit to the household in the cost-benefit calculations.

Exhibit 2-1. Sources and Assumptions for Determining Benefits Eligibility

Benefit	Sources for Determining Eligibility and Benefit Schedules	Assumptions and Notes
SNAP	Massachusetts Office of Health and Human Services website resources	We assume that households that are eligible receive and use the benefit amount for which they are eligible. We use the SNAP benefit schedule and the income reported to PIC to estimate the SNAP benefit amount for each household. ^a
WIC	Massachusetts Office of Health and Human Services website resources; United States Department of Agriculture state-level WIC cost reports	We assume that households that are eligible receive benefits. We assume the amount of benefits received equals the \$683 average cost per person of WIC benefits used in Massachusetts in 2015. ^b
Health insurance (Masshealth and Commonwealth Care)	Massachusetts Legal Assistance Corporation, Mass Legal Services; Massachusetts Office of Health and Human Services website resources; Massachusetts Center for Health Information and Analysis	We assume a total cost (per household member per month) of public health insurance for both Masshealth and Commonwealth Care equal to the average cost of Commonwealth Care. We do so because utilization patterns that drive greater costs for Masshealth are unlikely to be observed for members of our sample moving from eligibility for one program to the other. We model changes in eligibility, including moving from one program to another or moving off of both programs. For Commonwealth Care premium contributions owed per household, we use data on average premium contributions for 2012-2015. We do not model receipt of private health insurance benefits through employers. ^c
Childcare Vouchers	Massachusetts Executive Office of Education	We find a small and statistically insignificant difference in eligibility for Childcare Vouchers for FSS program participants. These vouchers are limited by government budget constraints, and we do not have data on the frequency of their receipt for our study sample. As a result, we do not include this cost to the government or benefit to the household in the cost-benefit calculations.

^a An estimated 85 percent of eligible people in Massachusetts accessed SNAP benefits in 2014 (Cunningham, Sukasih, and Castner, 2017). We do not discount by this amount because participation rates among recipients of housing assistance are thought to be higher than average.

^b While only about half of WIC-eligible families accessed WIC benefits in 2014 (Johnson et al. 2017; Smith, 2016), we do not discount WIC benefit estimates because participation in public benefits programs among recipients of housing assistance is thought to be very high. Participation rates are also higher than average among the demographics most common among Compass FSS participant heads of household (race/ethnicity, marital status, region) (Johnson et al. 2017; Thorn et al. 2015; Smith, 2016). The final calculation of costs and benefits, the savings to the government from benefit reductions are fully offset by the loss of benefits to participants.

^c From 2013 to 2015, most individuals eligible for Medicaid or Masshealth participated, ranging from 92 percent of eligible adults to 98 percent of eligible children (Kaiser Family Foundation, 2017).

Changes in cost of rental assistance. Participation in the FSS program can also affect the value of the rental assistance the families receive through the Housing Choice Voucher (HCV) program. Like families who are not enrolled in the FSS program, Compass FSS participants pay approximately 30 percent of their income for housing, with the HCV providing a housing assistance payment that covers the remaining housing costs up to a locally determined maximum. As Compass FSS participants' earnings increase they pay more in rent, leading to a reduction in the housing assistance payment paid to landlords by the PHA on behalf of the household. For participants in FSS, the PHA also makes an escrow contribution on behalf of the family, discussed in greater detail below.

For both Compass FSS participants and comparison group households, increases in earnings that led to increased income resulted in higher required payments by the household for rent and utilities and a reduction in the amount of housing assistance payments. In the period we study, employment conditions improved for low-income households and HCV holders generally. Households in the comparison group saw annual household earnings increase by an average of \$3,108 over the period during which their counterparts were participating in the Compass FSS program. Approximately 30 percent of this earnings increase went towards the households' contribution to housing costs, lowering the associated housing assistance payments for these households.

These housing assistance payment reductions that result from improving economic conditions were not generally realized by the PHA for FSS program participants in Lynn, since the amount of increased rent attributable to a change in income is put into the escrow account. The amount deposited by the PHA is halved in Cambridge, following CHA's special rules on how the escrow is calculated. For this cost-benefit analysis, we treat the amount of the voucher housing assistance payment and the amount of the escrow separately. We use PIC data to determine the amount of the housing assistance payment and apply the same regression model used to assess differential changes between treatment and comparison households for other outcomes to estimate the difference in rent and utilities paid and housing assistance received between Compass FSS participants and comparison households. We rely on PIC data for amounts of these outcomes.

Participant escrow

Because of the need to protect participant data confidentiality, we were not able to link HUD administrative records to data on participants' escrow account balances. Instead, for program participants receiving vouchers from the Lynn PHA, we estimate escrow from HUD administrative records using FSS program rules, as outlined in HUD form 52652.¹²

CHA is a Moving to Work (MTW) PHA and uses its MTW flexibility to alter the rules for determining the escrow amount that apply to PHAs generally. These alterations are reflected in our estimates of escrow amounts for the Cambridge Compass FSS participants:

- In the Cambridge FSS program, participants with incomes up to 80 percent of Area Median Income (AMI) receive an escrow deposit equal to half of the increased rent that they pay attributable to increases in earnings. For most families, this is half of the amount of escrow they would receive in a standard FSS program.

¹² See <https://www.hud.gov/sites/documents/52652.PDF>.

- In a standard FSS program, escrow deposits are capped for participants with earnings between 50 and 80 percent of AMI at the level applicable to a household at 50 percent of AMI. The Cambridge FSS program, however, has no such limitation.

We include the estimated escrow amounts in calculating changes in net total government and participant expenditures and benefits from the individual-level data.

Net changes in participant tax liability and benefit receipt and associated costs to the government

To calculate net changes in combined earnings and income, benefit receipt, and escrow savings we sum the elements described above for each individual at multiple levels. First, we sum outcome measures within relevant categories: earnings, public income supports, means-tested program benefits, and taxes. We then add up all relevant outcomes to produce grand totals. We produce separate totals with elements that are relevant from the FSS participant's perspective (e.g., only half of FICA taxes are included) and from the government perspective (e.g., earnings and the tenant portion of rent and utilities are not included). We then calculate differences between the FSS participant and comparison group outcomes for the totals using the same regression model used in the earnings impact analysis (Geyer et al. 2017) and in the estimates of impacts on each element of public income support, means-tested benefit programs, and taxes.

Note on statistical significance

For each element of our analysis, we examine whether the estimated impact associated with Compass FSS participation is statistically significant. This provides insight into whether the FSS program is associated with a significant change in the relevant tax liability or expenditure (e.g., the EITC) or public benefit (e.g., TANF). However, we sum the elements at the participant level without regard to whether a statistically significant impact is measured for the element in question when considered in the model individually. We then assess the statistical significance of the aggregate changes.

We take this approach in order to ensure that our model is able to account for the combined effect of each element of cost and benefit. The sum of multiple elements which individually do not exhibit statistically significant impacts may well itself have a statistically significant impact.¹³ Because we test for statistical significance of the aggregate impacts, we have confidence in the statistical significance of those aggregate estimates, even if we do not find that a specific component element's impact is significant on its own.

Estimating the net costs or benefits associated with Compass FSS

In Chapters 3 through 5 of this report, we focus on the average annual per-participant cost of administering the Compass FSS program and the average annual per-participant costs and benefits associated with participating in Compass FSS. We provide the figures in this way because we believe they are easier to digest as annual figures than if presented as five-year totals.

In aggregating the results to produce a net cost or benefit in Chapter 6, however, we aggregate the results across the entire five-year period to produce a total estimated cost or benefit per participant. This allows us to compare the program administration costs – which are experienced only while participants are

¹³ And the sum of multiple elements with statistically significant impacts may be insignificant. For example, an element with a positive impact may be offset by an element with a negative impact.

METHODOLOGY AND FRAMEWORK

enrolled in the Compass FSS program, over an average of 2.7 years – with the estimates of per-participant costs and benefits, which are calculated over the full five-year analysis period.

3. Costs of Administering Compass FSS

The Compass FSS program is administered by Compass in collaboration with its partner PHAs, CHA and LHAND. The coaching provided to participants by Compass coaches has a financial focus, helping participants improve income and employment, credit and debt, savings, utilization of high quality financial services, and asset development. The partnering PHAs coordinate with Compass and administer the escrow accounts. The PHAs provide Compass with a portion of the funding they receive from HUD to offset the costs of service coordination for FSS participants.

3.1 Compass FSS Costs per Participant

The costs of the program to Compass Working Capital per participant per year are detailed in Exhibit 3-1. We excluded data for the program startup years (2011-2012) in order to focus on the costs of program operations, rather than the costs of starting a new program.

Total Compass Costs per Participant per Year: \$2,403

This \$2,403 total cost per participant per year comprises a prorated portion of overhead costs, program staffing (the financial coaches), and non-staff program costs (including workshops required for program enrollment, materials used for outreach, and fees to credit bureaus to pull credit reports). All cost estimates are based on the proportion of Compass's overall program expenditures (across the organization's various programs) that are for FSS program activities in Cambridge and Lynn. These totals include in-kind resources used (including in-kind professional services and volunteer staff, such as volunteers supporting workshops).

COSTS OF ADMINISTERING COMPASS FSS

Exhibit 3-1. Estimated Program Costs to Compass Working Capital per Participant per Year

	2013	2014	2015	Total
Agency Overhead <i>Executive and administrative staff salaries and benefits</i> <i>Professional services</i> <i>Overhead operations costs (rent, insurance, etc.)</i>	\$100,800	\$152,000	\$168,700	
Overhead in-kind <i>Professional services</i>	\$61,100	\$40,000	\$15,800	
Total Overhead	\$161,900	\$192,000	\$184,500	\$538,400
Program Staffing	\$326,000	\$301,300	\$375,700	
Program Non-staff Inputs <i>Workshops/events</i> <i>Rent, supplies, IT, etc.</i>	\$90,500	\$90,100	\$94,300	
Program In-kind <i>Volunteer instructors</i>	\$20,400	\$13,600	N/A	
Total Program	\$436,800	\$405,000	\$470,000	\$1,311,900
Total Cost (Overhead + Total Program)	\$598,800	\$597,000	\$654,500	\$1,850,200
Annual Program Participants	222	283	265	770
Average Cost of Serving a Single FSS Participant for One Year	\$2,697	\$2,109	\$2,470	\$2,403

Source: Interviews with Compass staff and analysis of annual expenditure reports.

Items not included in Compass' costs

This annual average cost per participant is based on program expenditures by Compass. It does not include costs to the PHAs, which are reported in the next section. It also does not include costs to the participants of participating in the program—specifically, the value of the participant's time spent being coached or attending workshops. These costs would be relevant for an analysis of total cost and benefits from a societal perspective. This analysis does not include start-up costs associated with the Compass FSS programs in Lynn and Cambridge, but rather focuses on the costs of continuing and maintaining an existing program. Compass began ramping up the FSS program in 2011, with start-up activities continuing through 2012. While we do not include these costs in the analysis of the average annual costs of the program, we estimate that amortizing the start-up costs over a 10-year period would increase the per-participant annual cost by approximately \$175.

The analysis focuses only on the costs of implementing the Compass FSS program in the Lynn and Cambridge PHAs. Compass has grown since the time period covered by this evaluation and now has other FSS programs in addition to FSS programs in Lynn and Cambridge, as well as a national FSS network that it supports through coaching and technical assistance. Compass also engages in other, closely related activities as part of its mission. These include non-FSS workshops and partnerships with local organizations to integrate financial coaching and savings opportunities into other housing, educational, and workforce development programs.

COSTS OF ADMINISTERING COMPASS FSS

As Compass grows, it may be expected that agency overhead will be split over a larger number of programs, lowering the amount allocated to any one Compass FSS program and thus lowering its per-participant costs.

3.2 Lynn and Cambridge PHA Costs per Participant

LHAND and CHA are the public agency side of the public-private partnership with Compass for providing FSS programs to the residents of assisted housing programs administered by the PHAs. The housing authorities' costs includes the costs for housing staff that collect and record earnings and income data from residents and process the related documents and data entry requirements needed specifically for FSS participants, finance staff that track and manage escrow accounts, and facilities and administrative costs. The PHAs also transfer funds to Compass that cover about one-third of Compass's costs.

Exhibit 3-2 reports the PHA costs of the FSS program, broken out by staffing and administrative categories. The costs are estimated for the staffing and other resources used per year on average during 2013 through 2015.

Exhibit 3-2. Estimated Program Costs to PHAs per Participant per Year

	LHAND	CHA	Total
Staffing	\$78,600	\$102,000	\$180,600
<i>Housing staff</i>			
<i>Finance staff</i>			
Administrative	\$11,800	\$10,100	\$21,900
<i>Facilities cost</i>			
<i>Agency overhead</i>			
Total	\$90,400	\$112,100	\$202,500
FSS participants per year			257
Annual program cost per participant			\$788
PHA transfers to Compass	\$95,000	\$100,000	\$195,000

Source: Cost team interviews with PHA staff.

Total PHA Costs per Participants per Year

Together, the two PHAs devote an estimated \$202,500 in staffing and administrative resources to the FSS program. With an average participation of 257 households, this represents an average cost of \$788 per participant per year.

Items not Included in PHA costs

The \$195,000 per year that the PHAs pay Compass each year for administering their FSS programs is not included in the PHA cost per participant per year. These funds cover about one third of Compass's annual costs reported above. Including them as both Compass and PHA costs would result in double counting.

Also not included in the PHA costs is the cost of one-time customization of CHA systems to implement the PHA's special FSS escrow account rules. This one-time cost was approximately \$10,000.

The staffing cost estimates include prorated amounts of time that leasing officers – the PHAs' frontline staff – spend conducting FSS program specific financial reviews and related activities with HCV holders, separately from the usual annual income certifications. PHA staff that manage these individuals estimated

the proportion of their time spent on FSS-specific tasks (which we include in costs) versus other tasks related to administering the vouchers (which we do not include). Similarly, we do not include as an input time for other front-line staff that may recommend the FSS program in the course of regular interactions with non-participating clients, as such recommendations do not materially change the time it takes the staff to complete the non-FSS related task.

3.3 Total Cost per Participant of Compass FSS Programs

Combining Compass and PHA per-participant costs results in an estimate of $\$2,403 + 788 = \$3,191$ per participant per year in the Compass FSS program as the total cost of administering Compass FSS programs. This amount represents the value of all resources—staff, materials, facilities, and administration—used to operate a relatively mature program on an ongoing basis. The amount averages costs across all program participants without considering differences in intensity of program resources or other participant-specific cost drivers.

Since participants were in the Compass FSS program for an average of 2.7 years during the five-year study period, the total per-participant cost of administering the FSS program during the study period was \$8,613, and the average annual per-participant cost of administration across the five-year study period was one-fifth of this amount or \$1,723.¹⁴ Given this study's methodology of averaging costs and benefits across the full five-year study period, this \$1,723 figure is the annual per-participant cost that is comparable to the other figures and the one that we use in Chapter 6 in comparing the costs and benefits of Compass FSS.

The next sections provide the estimates needed to compare this average per-participant program cost to average program impacts in earnings and related changes in government and participant tax and benefit outcomes.

¹⁴ This figure is lower than the \$3,190 per participant cost noted above since, for most participants, the five-year time period includes time during which they were not in the Compass FSS program and thus the cost of administering the program for them was \$0.

4. Impacts on Participant Earnings, Credit, and Debt

The previously published evaluation of Compass FSS program outcomes in Cambridge and Lynn showed substantial positive estimated impacts of Compass FSS on participant household earnings as well as credit score and debt profile improvements that exceed available benchmarks (Geyer et al. 2017). The estimates of earnings and public benefits in that report covered the period from the 4th quarter of 2010 to the 1st quarter of 2016. Because tax liabilities and benefit eligibility are based on calendar year income and earnings, the analysis of costs and benefits in this report is based on outcomes through December 2015, covering the time period from the 4th quarter of 2010 through the 4th quarter of 2015. Therefore, we have reanalyzed the key outcome measures of the evaluation for this shorter time period, following the same methodology used by Geyer et al. (2017). We use transaction-level HUD PIC records to track participant and comparison group household changes in earnings.

We estimate the impact on earnings regardless of the length of time a particular FSS participant was in the FSS program. The average length of stay in FSS for the sample used in the analysis is 2.7 years.

Participant earnings and other private income

The estimated impact of Compass FSS participation on annual household earnings during this period is \$5,636.¹⁵ This estimate represents the difference between the gains in annual household earnings for Compass FSS participants and a matched comparison group between the 4th quarters of 2010 and 2015, after adjusting for differences in baseline characteristics ($p < 0.001$). Because these earnings gains happened over time, rather than right away, the impact of Compass FSS on average annual earnings (averaged across all quarters) during the study period was lower, at \$3,147 ($p < 0.001$). This \$3,147 is the estimate that we use to compare the costs and benefits of the program from the participant's perspective.

Participants also have income from pensions and other private sources (e.g., self-employment). There was a small positive (\$351 over the study period) but statistically insignificant increase in these income types for Compass participants relative to the matched comparison group. We include this estimate in the increase in earnings and other income of \$3,498 used to compare the costs of benefits of the program from the participant's perspective. We address income from public sources--unemployment insurance, TANF, SSI, and social security—in the next section.

Participant credit and debt

The credit and debt analysis in Geyer et al. (2017) uses a benchmarking framework comparing Compass Working Capital administrative data for participants with Experian credit bureau comparison group data. As reported in that report, Compass FSS participants saw an increase in FICO[®] credit score of 23 points following enrollment in Compass FSS (compared with 3.9 points for the comparison group). The share of Compass FSS participants with a FICO[®] Score also increased, rising by 7 percentage points between enrollment and the latest data available (comparison households remained flat). Compass FSS participants also saw significant decreases in high-interest debt, including derogatory debt and credit card debt. These improvements for Compass FSS participants exceeded the benchmarks we established by analyzing data provided by the Experian Credit Bureau.

¹⁵ The Geyer et al. (2017) evaluation reports this impact as \$6,305 using an additional quarter of data (Q1 of 2016).

IMPACTS ON PARTICIPANT EARNINGS, CREDIT, AND DEBT

These outcomes may well benefit participants in important ways. However, we do not have a basis for assessing a monetary value for these outcomes and thus do not consider them within this interim cost-benefit analysis.

5. Impacts on Tax Liabilities, Public Income Support, and Public Benefits

This section estimates the changes in use of public benefits and tax revenue and expenditures that are attributable to participation in the Compass FSS programs in Lynn and Cambridge. In some cases, these figures are based on the figures recorded by the PHAs in their annual and interim reexaminations of income. Where it is not possible to directly observe the use or receipt of all public benefits with the available PIC data, we have used benefit eligibility rules and benefit calculation schedules to determine estimated benefit levels. We use the same model and approach used by Geyer et al.(2017) and in the estimates of the program's impact on earnings for this cost-benefit analysis (reported in Section 4) to estimate impacts on tax revenue and expenditures, public income supports, and public benefits. Included in the public benefits reported in this section are housing assistance payments made on behalf of the participant and comparison households and the FSS escrows maintained by PHAs on behalf of the FSS participants.

Net federal income, payroll, and state income taxes

We estimated federal income taxes, payroll taxes and Massachusetts state income taxes for study participants and the comparison group using NBER's TAXSIM program and income and household characteristics reported in PIC data. Increases in Compass FSS participants' earnings alter their tax liabilities and benefits. The resulting estimated changes are summarized in Exhibit 5-1. Relative to the comparison group, Compass FSS participants' estimated annual net federal income tax liabilities were *lower* by an average of \$301 per year during the period studied. From the participant perspective, this represents a larger tax refund, as the expected annual income tax liability for a household participating in the FSS program averaged a negative \$1,744 (a net refunded tax credit). From the government perspective, this represents a net decrease in federal income tax revenue. This is attributable primarily to a higher Earned Income Tax Credit (EITC); participation in Compass FSS was associated, on average, with \$323 more in EITC per year, with an expected EITC for FSS participants of \$1,777. Participation in Compass FSS was also associated with an average \$67 per year in higher Additional Child Tax Credit amounts. This difference is not statistically significant but is included in the net changes to tax liability that are summed to determine net costs and benefits from the government and participant perspectives (see Section 2).

Participants have relatively low state income tax liability, with an expected outcome of \$177 per year on average over the study period. The impact estimate of \$11 higher state income tax liability for Compass participants relative to the comparison group is not statistically significant but is included in the net changes to tax liability for participants and to tax revenue for the government.

Participation in Compass FSS was associated with an increase in federal payroll taxes of \$239 per person per year for participants. All combined, the net total effect of Compass FSS participation from the participant perspective on federal taxes and payroll deductions was a reduction of \$73 annually in net tax liability. This amount is not statistically significant but nonetheless is included in the estimates of the program's benefits to participants. From the government perspective, participation in Compass FSS was associated with an increase in payroll tax receipts of \$478, half of which comes from the participant and half from the employer. In total, government tax revenue increases by an estimated \$166 annually as a result of the Compass FSS program, a change that is not statistically significant but which we include in the estimates of benefits from the government's perspective.

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

In sum, from the Compass FSS participant perspective, increased earnings result in a small and statistically insignificant decrease in net tax liability, largely attributable to the EITC. In effect, increases in EITC amounts to which participants become entitled are offset by increases in payroll taxes they pay as a result of higher earnings.¹⁶ From the government perspective, the earnings increases have only a small effect on net tax revenues. While income tax accounts go down as a result of larger EITC payments, payroll tax increases provide revenue that more than offsets the increased EITC.

Exhibit 5-1: Changes in Taxes from Government (Revenues) and Participant (Liabilities) Perspectives

Outcome	Government Perspective Impact ^a (Standard Error) <i>p</i> -Value	Participant Perspective Impact ^a (Standard Error) <i>p</i> -Value	Participant Perspective Expected Outcome If in Compass FSS Program ^b	Participant Perspective Expected Outcome If Not in Compass FSS Program ^b
Taxes				
Federal Income Tax	-\$301 (\$144) 0.04**	\$301 (\$144) 0.04**	-\$1,744	-\$1,442
State Income Tax	-\$11 (\$33) 0.74	\$11 (\$33) 0.74	\$177	\$188
FICA Taxes ^c	\$478 (\$108) <0.01***	-\$239 (\$54) <0.01***	\$1,472	\$1,233
Total taxes	\$166 (\$229) 0.50	\$73 (\$195) 0.71	\$94	\$21
Tax Credits (included in net federal)				
EITC	-\$323 (\$89) <0.01***	\$323 (\$89) <0.01***	\$1,777	\$1,454
ACTC	-\$67 (\$37) 0.08*	\$67 (\$37) 0.08*	\$529	\$462

p-value: * < 0.10, ** < 0.05, *** < 0.01

^a The impact is equal to the change in outcome measure since baseline that is attributable to enrolling in the Compass FSS program, estimated from participant-level data.

^b The means presented in this table are regression-adjusted means. That is, they are estimates of the average outcome that the full sample (Compass FSS + Comparison) would have if it were in Compass, and the average outcome that the full sample (Compass FSS + Comparison) would have if it were *not* in Compass

^c FICA taxes include both the employer and employee contributions from the government perspective, but the employee contributions only from the participant perspective.

¹⁶ We do not consider the resulting increase in eventual Social Security retirement and survivor benefits. In effect, the increased EITC is redirected to public health insurance and retirement savings.

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

Public income supports: Unemployment, TANF, SSI, and Social Security

We now review the changes in unemployment insurance, TANF, SSI, and Social Security income received by Compass FSS participants relative to the comparison group. These programs are examples of government transfer payments, which is evident when viewing the government and participant perspective columns in Exhibit 5-2. Decreases in any of these income sources for participants (a cost to participants) lead to corresponding decreases in government expenditures (a benefit to the government). (As noted earlier, we have not included the costs of administering these transfer programs in our calculations, which would lead to different numbers in the two columns.) Based on PIC records, participation in Compass FSS is associated with a decline in average annual unemployment benefit receipts of \$101 (not statistically significant) and a decline in average annual TANF receipts of \$631. The decline in the TANF benefit is large (and statistically significant) and leads to a corresponding reduction in government expenditures that we include in the cost-benefit analysis. FSS participation is associated with an annual average decrease in SSI of \$262, which is statistically significant at the 0.05 level, and a decrease in Social Security income of \$218, which is not statistically significant, but like all other elements of income and liability, is included within our sum across all categories at the individual level in order to estimate net costs and benefits.

Exhibit 5-2: Changes in Public Income Supports from Government and Participant perspectives

Outcome	Government Perspective (Savings) ^a (Standard Error) p-Value	Participant Perspective (Loss of Income Support) ^a (Standard Error) p-Value	Participant Perspective Income Support If in Compass FSS Program ^b	Participant Perspective Income Support If Not in Compass FSS Program ^b
Income Supports				
Unemployment	\$101 (\$143) 0.48	-\$101 (\$143) 0.48	\$823	\$923
TANF	\$631 (\$135) <0.01***	-\$631 (\$135) <0.01***	\$974	\$1,604
SSI	\$262 (\$117) 0.03**	-\$262 (\$117) 0.03**	\$564	\$826
Social Security	\$218 (\$172) 0.21	-\$218 (\$172) 0.21	\$516	\$735
Total Income Supports	\$1,211 (\$293) <0.01***	-\$1,211 (\$293) <0.01***	\$4,184	\$5,093

p-value: * < 0.10, ** < 0.05, *** < 0.01

^a The impact is equal to the change in outcome measure since baseline that is attributable to enrolling in the Compass FSS program, estimated from participant-level data.

^b The means presented in this table are regression-adjusted means. That is, they are estimates of the average outcome that the full sample (Compass FSS + Comparison) would have if it were in Compass, and the average outcome that the full sample (Compass FSS + Comparison) would have if it were *not* in Compass

Non-Housing Public Benefits: SNAP, WIC, Childcare Vouchers, Health Insurance

Exhibit 5-3 reports the estimated impact of Compass FSS participation on assistance received through the SNAP, WIC, and public health insurance programs, as well as on eligibility for Childcare Vouchers.

SNAP and WIC food assistance represents a transfer from the government to participants. We estimate that Compass FSS participation decreases SNAP benefits by \$136 annually over the course of our study period. This results from both a six percentage point decline in SNAP eligibility and a decrease over the period of FSS participation in the amount of SNAP assistance which participants were eligible to receive due to earnings increases. Although Compass FSS is associated with an earnings increase, WIC eligibility (either mom or kids) increases slightly (about 2 percentage points) for participants relative to the comparison group. This difference is significant at the 0.10 level but not at the 0.05 level. This is related to slight household size increases observed for FSS participants, as the WIC earnings eligibility thresholds increase with household size. Using an estimate of an annual average cost per participant to the government of \$683, we estimate that participation in Compass FSS is associated with an estimated annual increase of \$47 in WIC benefits used.

Compass FSS is associated with a small increase of 3 percentage points in estimated Childcare Voucher eligibility. However, this change is not statistically significant. Additionally, Childcare Vouchers are not an entitlement. We are not aware of estimates of Childcare Voucher receipt among our population. Since we do not know what share of participants receive this benefit and observe only a small, not statistically significant difference in receipt, we do not assess a cost per participant difference for this benefit.

During our study period, low-income households in Massachusetts received public health insurance assistance through two programs, Masshealth (Medicaid and CHIP) and Commonwealth Care (state-subsidized insurance). Additionally, as participant employment and earnings change, they are more likely to receive private health insurance through an employer. We do not have data for our study sample on private health insurance. Instead we model eligibility for the two public health insurance programs. We find an approximately 6 percentage point decline in eligibility for each of the programs attributable to Compass FSS participation, which translates into an estimated savings to the government of \$52 per participant per year that is not statistically significant.

In addition, because of increases in earnings, it is more likely that participants who are still eligible for health insurance are required to pay premiums and that those who were already required to pay premiums and remain eligible pay higher premiums. However, averaging over our study period, our estimates of the impact of Compass FSS on public insurance premiums and coinsurance is small (\$9) and not statistically significant.

We have state-level per-participant average costs to the government for each publicly funded health insurance program in Massachusetts. Because much of the difference in the costs to the government of the two programs is likely due differences in healthcare service utilization by the programs' populations, we conservatively estimate costs using the (lower) per-member per month cost of the Commonwealth Care program, rather than the higher costs of Masshealth, whose costs may be driven by a high-needs population.

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

Exhibit 5-3: Changes in Non-Housing Public Benefit Expenditures / Receipt per person per year from Government and Participant perspectives

Outcome	Government Perspective (Savings) ^a (Standard Error) <i>p-Value</i>	Participant Perspective (Loss of Benefit) ^a (Standard Error) <i>p-Value</i>	Participant Perspective Benefit If in Compass FSS Program ^d	Participant Perspective Benefit If Not in Compass FSS Program ^d
Public Benefits				
SNAP	\$136 (\$39) <0.01***	-\$136 (\$39) <0.01***	\$556	\$692
WIC	-\$47 (\$25) 0.07*	\$47 (\$25) 0.07*	\$252	\$205
Public Health Insurance	-\$52 (\$218) 0.81	\$52 (\$218) 0.81	\$12,862	\$12,811
Childcare Voucher Eligibility ^b		0.03 (0.024) 0.17	0.57 eligible	0.54 eligible
<i>Total Public Benefits</i>	\$38 (\$251) <0.88	-\$38 (\$251) <0.88	\$13,670	\$13,708
Participant health insurance premiums and coinsurance ^c		-\$9 (\$12) 0.48	-\$3,648	-\$3,639

p-value: * < 0.10, ** < 0.05, *** < 0.01; Individual benefits are included in total calculated at the participant level whether or not a statistically significant effect is observed for the benefit when considered in isolation.

^a The impact is equal to the change in outcome measure since baseline that is attributable to enrolling in the Compass FSS program, estimated from participant-level data.

^b Not included in total dollar amounts.

^c The value of participant health insurance premiums are not included in total calculations of changes in costs and benefits because changes in public health insurance assistance capture changes in total public benefits. Including these amounts would double-count the results of changes in these benefits.

^d The means presented in this table are regression-adjusted means. That is, they are estimates of the average outcome that the full sample (Compass FSS + Comparison) would have if it were in Compass, and the average outcome that the full sample (Compass FSS + Comparison) would have if it were *not* in Compass

Combined Net Effect on Taxes and Non-Housing benefits.

Combining the changes in tax liabilities, public income supports, and non-housing public benefits, we find a net decrease in government expenditures (including tax expenditures) attributable to Compass FSS of \$1,414 per person per year and a net decrease to the participant in received benefits of \$1,175. The difference between these two numbers, \$239, is the employer portion of FICA taxes, which increase government revenue but do not increase participants' taxes.

Net Change in Housing Assistance Expenditures

This section describes the (a) the deposits made into FSS participants' escrowed savings accounts and (b) the offsetting reduction in housing assistance payments the PHA makes to participants' landlords. In a standard FSS program for Housing Choice Voucher holders, the deposits into the FSS escrow account are mostly or entirely offset by reductions in housing assistance payments to participants' landlords,

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

rendering the sum of items (a) and (b) close to zero. While the Lynn FSS program follows the standard FSS escrow model, the Cambridge FSS program utilizes a different escrow formula, adopted under its authority as a Moving to Work Agency. As a result, these items only partially offset each other in our calculations.¹⁷

(a) FSS Escrow

In the FSS program, the housing authority makes deposits to participants' escrow accounts as their earnings (and, consequently, household rent contributions) increase. While Compass FSS programs allow participants to make interim withdrawals from the escrow accounts to meet specific goals, participants only receive unrestricted access to the full balance of the escrow account if and when they graduate from FSS. Because of data security restrictions, our ability to analyze households' actual escrow balances is limited. Instead, we use program rules to estimate escrow account balances using PIC administrative data. We calculate monthly escrow contributions under the traditional program rules for participants in Lynn and under the modified rules in CHA using earnings reported in HUD administrative data.

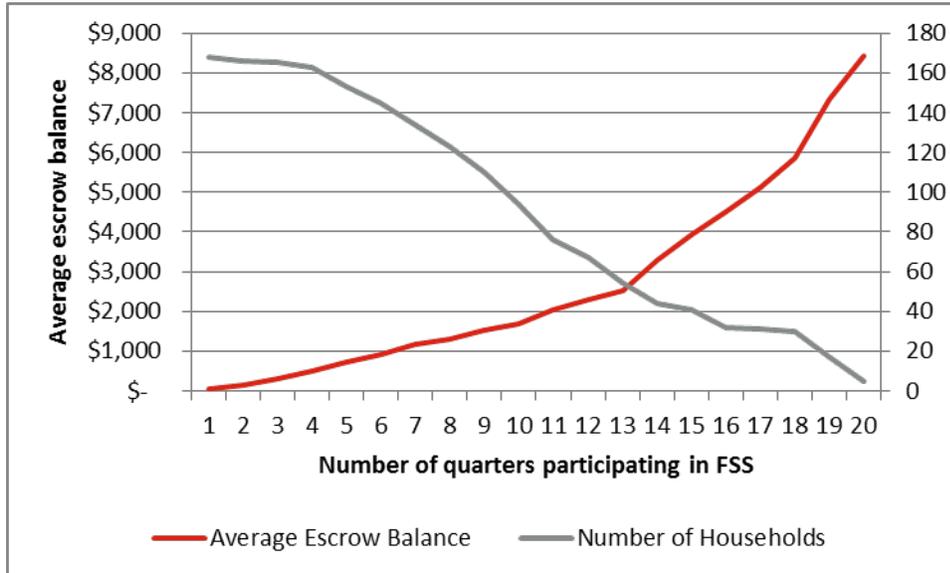
Exhibit 5-4 shows the estimated the average escrow account balance by number of quarters since entering FSS, along with the number of households that have participated for this number of quarters (recall that most program participants are yet to complete the program). As shown in this exhibit, average escrow account balances rise over time, and increase most rapidly after about 13 quarters in the program. Households that have been participating in FSS the longest in our sample have an average estimated accrued balance of over \$8,400 in their escrow accounts five years after program enrollment.

We include escrow amounts in our estimates of the total net benefit of the FSS program because the funds will either go to the participant (leading to an increase in participant benefits) or back to the PHA/HUD (leading to a decrease in government costs). Either way, the full value of the escrow is a benefit. We include the imputed escrow amounts in our total cost and benefit computed at the individual level. In this framework, we calculate that over the five-year period used in our analysis, Compass FSS participants accrued an average of \$2,040 in escrow, which works out to \$408 per year of the five-year analysis period, or about \$756 per year of participation in FSS (\$2,040 divided by 2.7 years of participation).

¹⁷ The effect of Cambridge's non-standard escrow is to reduce the net cost of the program to the government, since Cambridge provides lower escrow deposits than a standard FSS escrow program, and to reduce the net benefit of the program to participants since participants in the Cambridge FSS program accumulate less escrow than participants in other programs. These two factors offset each other completely in the final aggregation of costs and benefits. Accordingly, the non-standard escrow calculation in Cambridge has no net effect on the costs and benefits of the Compass FSS program.

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

Exhibit 5-4: Imputed Escrow Account Balances and Participation Rates by Quarters of FSS Program Participation



Source: Escrow balances simulated from PIC data using program rules.

Administrative data from Compass Working Capital on participant escrow disbursements between January 2011 and early August 2017 indicate that participants who graduate from the program are likely to accumulate larger amounts of escrow. According to Compass Working Capital administrative data, program graduates since the start of Compass’s FSS program have received an average of \$6,465 in final disbursements and a median of \$3,669. In addition, some participants used interim withdrawals to help meet personal program goals prior to graduation and final disbursement, which has lowered the final accrued amount in the final disbursement. Exhibit 5-5 summarizes this reported disbursement information. While shown here to illustrate the higher escrow payouts to graduates, these data do not factor into our calculation, which is based on simulated escrow deposits for all households, as described above, and does not examine amounts for program graduates separately.

Exhibit 5-5: Summary of Cambridge and Lynn Final Escrow Disbursements January 2011- August 2017

Average final amount: \$6,465	Median final amount: \$3,669
Number of final disbursements: 146 participants	25 th Percentile: \$1,669
Number greater than \$10,000: 30 participants	75 th Percentile: \$8,893
Number less than \$1,687: 37 participants	

Source: Compass Working Capital Administrative Data for Cambridge and Lynn FSS participants

(b) Housing Assistance Payments to Participants’ Landlords

In an HCV program, participants are responsible for paying at least 30 percent of their adjusted household income toward rent and utilities, which they pay directly to the the landlord. The housing authority pays the remainder of the rent, up to a maximum known as the voucher payment standard, directly to the

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

landlord through housing assistance payments. As shown in Exhibit 5-6, participation in Compass FSS is associated with an average annual decrease of \$662 in housing assistance payments from PHAs to landlords on participants' behalf. This reduction, which is attributable to increases in participant earnings and required rent contributions, represents decreased government spending from the government perspective and a decreased benefit from the household perspective. This shift is reflected in an observed increase in housing costs to participants of \$727.¹⁸

Exhibit 5-6. Changes in Escrow Deposits, Housing Assistance, and Housing Expenses per Person per Year from Government and Participant Perspectives

Outcome	Government Perspective (Savings) ^a (Standard Error) <i>p-Value</i>	Participant Perspective ^a (Standard Error) <i>p-Value</i>	Participant Perspective Benefit if in Compass FSS Program ^d	Participant Perspective Benefit if Not in Compass FSS Program ^d
Escrow	-\$408 (\$40)	\$408 (\$40)	\$408	\$0
Housing Assistance	\$662 (\$233) <0.01***	-\$662 (\$233) <0.01***	\$11,918	\$12,580
<i>Total of Escrow and Housing Assistance</i>	<i>\$253</i> <i>(\$231)</i> <i>0.27</i>	<i>-\$253</i> <i>(\$231)</i> <i>0.27</i>	\$12,327	\$12,580
Participant Housing Expenses ^c		-\$727 (\$186) <0.001***	-\$7,735	-\$7,008

p-value: * < 0.10, ** < 0.05, *** < 0.01; Individual benefits are included in total calculated at the participant level whether or not a statistically significant effect is observed for the benefit when considered in isolation.

^a The impact is equal to the change in outcome measure since baseline that is attributable to enrolling in the Compass FSS program, estimated from participant-level data.

^b Not included in total dollar amounts.

^c The value of participant housing expenses is not included in total calculations of changes in costs and benefits because changes in housing assistance capture changes in total public benefits. Including these amounts would double-count the results of changes in these benefits. Changes in housing assistance are not exactly offset by changes in participant housing expenses because overall rent levels increased more over the study period in areas where participants live than in areas where comparison individuals live.

^d The means presented in this table are regression-adjusted means. That is, they are estimates of the average outcome that the full sample (Compass FSS + Comparison) would have if it were in Compass, and the average outcome that the full sample (Compass FSS + Comparison) would have if it were *not* in Compass

¹⁸ From the participant perspective, a dollar decrease in housing assistance is offset by a dollar increase in rent, for households maintaining the same level of housing consumption. So the net change in household welfare is a one dollar loss in assistance. We thus do not incorporate the increase in rent as a separate input into the cost-benefit analysis. As shown here, the increased rent paid by FSS participants is somewhat larger than the lost amount of housing benefit. This is likely due to changes in the rents of FSS participants. FSS participants had greater rent increases than the comparison households, who were in the same region (southern New England) but in different housing markets. All FSS participants were in the Boston metropolitan area, while most comparison households were not. This change in costs to participants is not attributable to the FSS program and is not included in the cost-benefit calculations.

IMPACTS ON TAX LIABILITIES, PUBLIC INCOME SUPPORT, AND BENEFITS

(c) Net Change in Housing Assistance Expenditures

As shown in Exhibit 5-6, the net changes in average annual housing assistance payments per participant (a reduction of \$662) and average annual escrow deposits (\$408 in deposits) partially (but not completely) offset each other. From the government perspective, the net change in housing assistance and escrow associated with Compass FSS participation is an average annual decrease in expenses of \$214 – a net benefit. By contrast, from the participant perspective, the net change is an average annual decrease in housing assistance and escrow of \$214 – a net cost.

6. Net Costs and Benefits of the Compass FSS Program

In this section, we summarize our estimated costs and benefits from the prior sections into our interim, bottom-line measures of the costs and benefits of the Compass FSS program.

This process has three steps:

First, we summarize the per-participant per-year costs and benefits of the Compass FSS program from the earlier chapters in Exhibit 6-1. In this exhibit, items that have a net cost (like program administration costs) are shown as negative values while items that have a net benefit (like savings to the government through reductions in public benefits) are shown as positive values.

Second, we convert the annual estimates into five-year estimates by multiplying all costs by five to produce a total aggregate estimate of each cost or benefit over the full study period.

Finally, we aggregate all of the resulting five-year totals to produce an estimate of the net cost or benefit of the Compass FSS program over the 2011-2015 period. In sum, as described below and shown in Exhibit 6-2, we estimate that the Compass FSS program produced an estimated net benefit of **\$10,069 per participant over the five-year analysis period**, taking into account costs and benefits from (a) the perspective of the government and other funders of the program and (b) the perspective of the families participating in the program.

Government / Program Perspective

The estimated net cost to the government / program of the Compass FSS program over the 2011-2015 period was **\$276 per participant**. This is the sum of the following costs and savings:

1. Compass FSS cost **\$8,616** per participating household (participant) to administer.
2. Compass FSS led to an increase of **\$830** in tax revenue per participant, mostly due to increases in the employer portion of participants' payroll taxes.
3. Increases in participant earnings and other income led to an estimated savings of **\$6,240** in public income supports and means-tested benefits,
4. Compass FSS led to an estimated savings of **\$1,270** per participant in housing assistance expenditures. This is the net of (a) deposits to escrow accounts that averaged **\$2,040** per participant and (b) reductions in housing assistance payments that averaged **\$3,310** per participant.

NET COSTS AND BENEFITS OF THE COMPASS FSS PROGRAM

Exhibit 6-1: Summary of Individual Costs and Benefits on a Per-Participant Per-Year Basis

Outcome (annual per-household)	Cost/Benefit ^a	Expected Cost/Benefit If in Compass FSS Program ^b	Expected Cost/Benefit If Not in Compass FSS Program ^b
Government / Program perspective			
Per-participant annual cost of administering Compass FSS program ^c			
Compass total cost	-\$1,298	-\$1,298	\$0
PHA total cost	-\$425	-\$425	\$0
Total program cost	-\$1,723	-\$1,723	\$0
Changes in tax revenue			
Total taxes (federal and state income, FICA)	\$166	-\$1,378	-\$1,213
Changes in public income supports and benefits (excluding housing assistance)			
Unemployment	\$101	-\$833	-\$924
TANF	\$631***	-\$974	-\$1,604
SSI	\$262**	-\$564	-\$826
Social Security	\$218	-\$516	-\$735
Total income supports	\$1,211	-\$2,877	-\$4,088
Non-housing public benefits (SNAP, WIC, public health insurance)	\$38	-\$13,670	-\$13,708
Total public income supports and benefits savings (excluding housing assistance)	\$1,249***	-\$16,547	-\$17,796
Housing assistance expenditures			
Housing assistance payments	\$662***	-\$11,918	-\$12,580
Average annual escrow deposits ^c	-\$408***	-\$408	\$0
Total housing assistance plus escrow	\$253	-\$12,327	-\$12,580
Participant perspective			
Income from non-government sources (annual per-household)			
Earnings	\$3,147***	\$22,861	\$19,714
Pension and other income	\$351*	\$1,375	\$1,023
Total increase in income from non-govt. sources	\$3,498***	\$24,236	\$20,737
Changes in taxes			
Total taxes (federal and state income, ½ FICA)	\$73	\$94	\$21
Changes in public income and supports and benefits (excluding housing assistance)			
Unemployment	-\$101	\$823	\$923
TANF	-\$631***	\$974	\$1,604
SSI	-\$262**	\$564	\$826
Social Security	-\$218	\$516	\$735
Public benefits (SNAP, WIC, public health insurance)	-\$38	\$13,670	\$13,708
Total public income supports and benefits (excluding housing assistance)	-\$1,248***	\$16,547	\$17,796
Housing assistance benefits			
Housing assistance payments	-\$662***	\$11,918	\$12,580
Average annual escrow deposits	\$408***	\$408	\$0
Total housing assistance plus escrow	-\$253	\$12,327	\$12,580

p-value: * < 0.10, ** < 0.05, *** < 0.01

NET COSTS AND BENEFITS OF THE COMPASS FSS PROGRAM

^a The cost or benefit is equal to the change in outcome measure since baseline that is attributable to enrolling in the Compass FSS program, estimated from participant-level data. In most cases, these are impact estimates that compare outcomes for participants and comparison households using a regression model that controls for baseline characteristics. The cost of administering the program is estimated at the program level.

^b The means presented in this table are regression-adjusted means. That is, they are estimates of the average outcome that the full sample (Compass FSS + Comparison) would have if it were in Compass, and the average outcome that the full sample (Compass FSS + Comparison) would have if it were *not* in Compass.

^c Program costs are estimated at the program and PHA level. As such, these estimates cannot be incorporated into statistical test

Program Participant Perspective

The net benefit to participants was **\$10,345 per participant** over the 2011-2015 period. This is the sum of the following:

1. Participation in FSS led to an average increase of **\$17,490** in earnings and other income per participant
2. Participation in FSS led to an average decrease of **\$365** in tax liability per participant, mostly due to increases in the Earned Income Tax Credit and Child Tax Credit.
3. Participation in FSS led to an average decrease of **\$6,240** per participant in public benefits received.
4. FSS led to an estimated reduction of **\$1,270** in housing assistance benefits per participant. This is the net of (a) deposits to escrow accounts that averaged **\$2,040** per participant and (b) reductions in housing assistance payments that averaged **\$3,310** per participant.

In reporting these estimates in Exhibit 6-2, we have listed all estimates in one of two columns. “Costs” are items that contribute to the cost of the program to the government or decrease the benefit of the program to participants and “Benefits” are items that offset the program’s cost or increase the benefit to participants. Placing the items in these two columns allows them to be summed across categories to produce a net average annual cost or benefit of the program during the time period studied. Net costs and benefits are shown both with and without the value of the escrow account.¹⁹

¹⁹ While the Compass FSS program has not been in operation long enough to know how much of the escrowed funds will be awarded to program participants, any forfeited escrow will reduce the costs to the government/program and reduce the program’s benefits for participants by the same amount, with no net effect on the program’s overall net benefit. Accordingly, we count the full value of the escrow here as a participant benefit and the full value of the escrow deposits as a government/program cost.

NET COSTS AND BENEFITS OF THE COMPASS FSS PROGRAM

Exhibit 6-2: Summary of Interim Cost-Benefit Analysis Findings, 2011-2015

	Cost	Benefit
<u>Government/Program Perspective (per participant, over 5 years)</u>		
1. Total program costs (Compass + PHAs):	\$8,616	
2. Net increase in tax revenue:		\$830
3. Net decrease in non-housing income supports & benefits paid:		\$6,240
4. Net change in housing assistance expenditures		
a. Deposits into escrow account:	\$2,040	
b. Reduction in housing assistance payments to landlords:		\$3,310
<i>Net effect of program on government/program expenditures:</i>	<i>\$276</i>	
<u>Participant Perspective (per participant, over 5 years):</u>		
1. Increase in earnings and other income:		\$17,490
2. Net decrease in tax liability:		\$365
3. Net decrease in non-housing income supports & benefits received:	\$6,240	
4. Net change in housing assistance benefits		
a. Savings in escrow accounts:		\$2,040
b. Reduction in housing assistance benefits:	\$3,310	
<i>Net effect of program on participants:</i>		<i>\$10,345</i>

Total program cost is estimated at the program level. The remaining values are averages per participant of the change in outcome measures since baseline that are attributable to the participant's enrolling in the Compass FSS program. Those impacts are estimated from participant-level data using a linear regression model that compares Compass FSS participants to a comparison group of similar households in nearby PHAs that do not have an FSS program. Except for estimates of tax liability, all of these values are statistically significant at the .01, .05 or .10 levels. See the earlier chapters of this report for the significance levels of each estimate.

Subtracting the \$276 in government/program costs from the \$10,345 in participant benefits leads to a net benefit of \$10,069 per participant over the 2011-2015 period. Exhibit 6-3 displays another way of arriving at the same result. As indicated in this exhibit, the net effect of public benefits is \$0 since the government savings are fully offset by a loss of income to the participant. The net effect of the escrow is similarly \$0 since the cost to the government is offset by a benefit to the participant.

Exhibit 6-3. Summary of Total Net Benefit Calculation

<i>Program Cost</i>	+	<i>Income gains</i>	+	<i>Taxes</i>	+	<i>Net public benefits</i>	+	<i>Net HAP</i>	+	<i>Net escrow</i>
-\$8,616		\$17,490		\$1,195		\$0		\$0		\$0

= \$10,069 per participant

In sum, over the 2011-2015 study period, estimated benefits of the program substantially outweigh estimated costs. As program participants complete the FSS program, we expect that the net benefits of the program would grow. The costs of the Compass FSS program are generally all incurred during the first five years of enrollment (or less, for households graduating in fewer than five years). By contrast, the benefits, including increased earnings and financial stability, and the associated decreased costs to the

NET COSTS AND BENEFITS OF THE COMPASS FSS PROGRAM

government of public assistance, are likely to continue beyond the end of program participation. As a result, we expect that a comprehensive cost-benefit analysis that considers these future benefits would find an even larger net benefit of the program.

One note on the generalizability of these findings: As reflected in Exhibit 6-2, the per-participant reduction in housing assistance payments to participants' landlords exceeds the per-participant escrow deposits by a total of \$1,270 over the five year study-period. This is due primarily to the fact that Cambridge uses a non-standard escrow calculation that, for most households, calculates the escrow deposit as half of the standard FSS escrow deposit. In a standard FSS program, by contrast, we would expect these two factors to net out to a number closer to zero. The effect of the non-standard FSS escrow formula in Cambridge is to modestly decrease the costs of the program to the government but also to modestly decrease the benefit to participants by an equal amount, with no net effect on the overall costs and benefits of the program when these two perspectives are combined.

7. Conclusion

Our interim analysis of the costs and benefits of the Compass FSS program for government sources, program providers, and participants suggests that the Compass FSS program is cost-effective over the time period analyzed. We estimate the program produced a **net benefit of \$10,069 per person over the 2011-2015 time period studied.**

While our analysis has a number of limitations discussed in the body of the report, we believe it provides a clear account of the near-term (or proximal) costs and benefits of the program and encompasses many of the factors of interest to policymakers and philanthropic investors as they consider investing in a program like Compass FSS. It also provides a solid foundation for future efforts to broaden the cost-benefit analysis to address some or all of the factors excluded from this initial analysis.

A more complete analysis would include other factors as well, ideally after a longer period of time has elapsed to observe program effects. On the whole, these factors and time spans, if considered, would be most likely to result in additional net increases in benefits to both the participants and government entities. For example, our analysis does not directly incorporate program impacts on participant progress toward establishing and increasing credit scores or paying down high-interest debt (detailed in Geyer et al. (2017)). These outcomes may benefit participants in important ways, in the short, medium, and long-term without any additional cost to the government. However, we do not have a basis at this time for assessing a monetary value for these outcomes and so do not consider them within this interim cost-benefit analysis.

In addition, some benefits may persist or grow following program participation, including increased future earnings (and associated cost savings to the government), which (after program participation ends) would not lead to any new or ongoing costs to the program or government. Because this cost-benefit analysis only assesses short-term costs and benefits, we do not consider secondary benefits to participants or the government over the long term, including likely increases in eventual Social Security retirement and survivor benefits as FSS participants with increased earnings contribute more into these systems. For a list of other factors to include in a future cost-benefit analysis, see the introduction.

We also expect that Compass's costs per participant are likely to decline somewhat over time. As Compass continues to grow, agency overhead will likely split further over a larger number of programs, lowering the amount allocated to any one Compass FSS program and thus lowering its per-participant costs.

Taken together with the earlier Compass FSS program impact analysis that shows promising positive results of the program along multiple dimensions, the net positive benefits in this analysis suggest the program is a cost-effective investment of resources with costs to the government / program that are offset to a significant extent by lower public benefit payments and outweighed by substantial benefits to participants.

References

- Boardman, Anthony, David Greenberg, Aidan Vining, David Weimer. 2014. *Cost-Benefit Analysis: Concepts and Practice, 4th Edition*. Pearson Higher Ed, New Jersey.
- Cunningham, Karen, Amang Sukasih, and Laura Castner. 2017. “Empirical Bayes Shrinkage Estimates of State Supplemental Nutrition Assistance Program Participation Rates in Fiscal Year 2012 to Fiscal Year 2014 for All Eligible People and Working Poor People.” Washington, DC: Mathematica Policy Research.
- Feenberg, Daniel Richard, and Elizabeth Coutts. 1993. “An Introduction to the TAXSIM Model,” *Journal of Policy Analysis and Management* vol. 12 no. 1, pages 189-194.
- Geyer, Judy, Lesley Freiman, Jeffrey Lubell and Micah Villarreal. 2017. *Evaluation of the Compass Family Self-Sufficiency (FSS) Programs Administered in Partnership with Public Housing Agencies in Lynn and Cambridge, Massachusetts*. Bethesda, MD: Abt Associates.
<http://www.abtassociates.com/CompassFSS>
- Johnson, Paul, David Betson, Lorraine Blatt, and Linda Giannarelli. 2017. National- and State-Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Eligibles and Program Reach in 2014, and Updated Estimates for 2005–2013. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.
- Kaiser Family Foundation. State Health Facts, Medicaid/CHIP Participation Rates, 2013-2015.
<https://www.kff.org/state-category/medicaid-chip/medicaid-and-chip-participation-rates/> Accessed Dec 18, 2017.
- Santiago, Anna Maria and George C. Galster. *Analyzing the Social Benefits and Costs of an Innovative Asset-Building Program for Low-Income Public Housing Residents*. 2013 APPAM Meetings, November 7, 2013, Washington, DC.
- Smith, Kristin. 2016. *Fewer Than Half of WIC-Eligible Families Receive WIC Benefits*. Carsey Research, National Issue Brief #102. Durham, NH: University of New Hampshire, Carsey School of Public Policy.
- Thorn, B., Tadler, C., Huret, N., Trippe, C., Ayo, E., Mendelson, M., Patlan, K. L., Schwartz, G., & Tran, V. (2015). WIC Participant and Program Characteristics 2014. Prepared by Insight Policy Research under Contract No. AG-3198-C- 11-0010. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.
- Verma, Nandita, Edith Yang, Stephen Nuñez, David Long, with Victoria Deitch. 2017. *Learning from the Work Rewards Demonstration: Final Findings from the Family Self-Sufficiency Study in New York City*. New York City, NY: MDRC.