

Return on Investment Study: Birth & Beyond Home Visitation Program

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CONTENTS

Executive Summary	ES-1
Birth & Beyond Home Visitation Program	ES-1
Return on Investment Study Methods.....	ES-3
Program Benefits, Forgone Benefits (Opportunity Cost), and Program Costs.....	ES-6
ROI Results.....	ES-9
Introduction	1
Program Description	2
Population Served.....	3
B&B Evaluation History.....	5
Selection of B&B HV Program for the AmeriCorps ROI Project.....	6
Comparable ROI Estimates	6
ROI Methodology	8
Monetizing Program Benefits, Forgone Benefits (opportunity cost), and Program Costs.....	11
ROI Study Limitations	21
Program Benefits, Forgone Benefits (opportunity cost), Program Costs, and ROI Results	22
Program Benefits	22
Forgone Benefits (Opportunity Costs).....	23
Program Costs	24
ROI Results.....	25
Recommendations for Further Research	29
Conclusion	30
Appendix A: Program Benefits, Forgone Benefits, and Program Costs Included in Return on Investment Calculations	32
Appendix B: Additional Information on the Methodology	39
Methodology Overview.....	39
Measuring Program Benefits.....	40
Measuring Forgone Benefits (Opportunity Costs)	62
Measuring Program Costs.....	66
Calculating ROI	67
References	70

LIST OF FIGURES

Figure 1. Benefits among Stakeholder Groups Derived from the B&B HV Program	10
Figure 2. Unemployment Status Results from Friedman et al. (2016)	45
Figure 3. Compound Interest Formula Used to Calculate Investment Opportunity Cost.....	65

LIST OF TABLES

Table 1. Selected Demographic Characteristics of Population Served Through B&B During Fiscal Year 2018-2019.....	4
Table 2. Benefits Realized from the B&B HV Program by Stakeholder Group.....	11
Table 3. B&B HV Program Costs by Funder Type	21
Table 4. Program Benefits by Recipient	22
Table 5. Forgone Benefits from Professional Opportunity Cost	23
Table 6. Investment Opportunity Cost by Scenario and Funding Stream.....	24
Table 7. Program Cost by Funding Source for the B&B HV Program	24
Table 8. Benefits, Forgone Benefits, and Costs Included in the ROI Calculations	25
Table 9. Program Benefits, Net Benefits and Program Costs by ROI Scenario.....	25
Table 10. ROI Results for the B&B HV Program.....	27
Table 11. Program Benefits, Forgone Benefits, and Program Costs Included in ROI Calculations	32
Table 12. Number of Additional Children Not Abused or Neglected Due to their Mothers' Participation in the B&B HV Program	42
Table 13. Number of Additional High School Graduates due to Child Maltreatment Prevention	43
Table 14. Additional Lifetime Earnings Due to Additional High School Graduates.....	43
Table 15. B&B HV AmeriCorps Member Benefits from the Living Allowance and Education Award.....	44
Table 16. Additional Pre-tax Earnings for B&B HV AmeriCorps Members from Reduced Unemployment Based on B&B HV AmeriCorps Member Demographics.....	46
Table 17. Cumulative Additional Post-tax Earnings Derived from Reduced Unemployment due to Serving with the B&B HV Program by Scenario.....	46
Table 18. Average Total Cost of Education and Portion Attributable to Education Award by Degree Type.....	48
Table 19. Estimates of the Number of Post-secondary Degrees Pursued Using the Education Award by Degree Type	49

Table 20. Additional Earnings from AmeriCorps Members' Use of the Education Award	50
Table 21. Per-Victim Lifetime Cost and Economic Burden of Nonfatal Child Maltreatment Estimates	55
Table 22. Lifetime Cost Savings Due to Child Maltreatment Prevention*	56
Table 23. Government Costs by Educational Attainment Level per Individual's Lifetime	58
Table 24. 2020 Tax Rates and Ratio of Taxable Expenditures for B&B HV AmeriCorps Members' Earnings, Living Allowances, and Education Awards.....	59
Table 25. State/Local and Federal Government Benefits by Stakeholder Group and by Scenario	61
Table 26. Forgone Earnings of B&B HV AmeriCorps Members for a Service Term.....	63
Table 27. Forgone Taxes Associated with the Forgone Earnings of B&B HV AmeriCorps Members for a Service Term	64
Table 28. Forgone Benefits from Investment Opportunity Cost Calculation by Scenario and Funding Stream.....	66
Table 29. Funding Sources and Amounts for the B&B HV Program (2019–2020)	67
Table 30. ROI Calculations for Short-term Scenario	68
Table 31. ROI Calculations for Medium-Term Scenario	69
Table 32. ROI Calculations for Long-Term Scenario	69

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Executive Summary

Birth & Beyond Home Visitation Program

AmeriCorps contracted with ICF Incorporated, LLC (hereafter ICF) to explore and quantify the return on investment (ROI) of several programs that rely on AmeriCorps national service as a major resource to sustain operations. ROI analyses have the potential to help AmeriCorps measure the performance of programs and build the base of evidence for future resource allocation decisions. In addition, ROI study results will help AmeriCorps communicate the value of its programming to relevant stakeholders.

This ROI study measures the benefits of the Birth & Beyond (B&B) Home Visitation (HV) program against its costs. B&B is a parenting education and support intervention program designed to reduce child abuse and neglect. It is implemented across nine local Family Resource Centers (FRCs) in Sacramento County, California. B&B is managed overall by the Child Abuse Prevention Center (CAPC), which is a statewide training, education research, and resource center focused on strengthening children, families, and communities. The FRCs are operated by six nonprofit partners: Folsom Cordova Community Partnership, La Familia Counseling Center, Mutual Assistance Network, River Oak Center for Children, Sacramento Children's Home, and WellSpace Health. Overall, B&B provides linguistically and culturally diverse family services, short-term crisis intervention services, home visitation services, and an extensive network of resources for families in high-need communities at no cost. B&B's HV program specifically uses professionals and AmeriCorps State and National members to provide weekly in-home case management and parenting lessons to program participants for a minimum of two months. The B&B HV program leverages the evidence-based curriculum provided by the Nurturing Parenting Program (NPP) model, which helps parents develop an empathetic relationship with their children, identify and apply positive parenting approaches, and get referrals to community resources for health education. The program is designed to improve bonding, parent-child relationships, and child behavior in order for children to reach their full potential while parents receive the support they need in the comfort of their own homes. There are three ways parents can be referred to the B&B HV program: directly through Child Protective Services (CPS), hospitals, or self-referral. Once enrolled in the program, parents are required to take the Adult Adolescent Parenting Inventory (AAPPI) assessment, which measures their risk for child maltreatment by evaluating their parenting beliefs and practices. Based on their AAPPI scores, parents are categorized into one of three service level groups: prevention, intervention, or treatment. Given their service level group, they receive a specific set of lessons and suite of services.

Key Results

This study estimates the B&B HV program's ROI to be between \$0.50 to \$2.11 per funder dollar, depending on how long benefits to B&B HV AmeriCorps members and long-term program outcomes. The return on each dollar of federal support for the program is even higher, between \$1.10 and \$4.58. These results are driven by favorable employment and education outcomes for B&B HV AmeriCorps members following their service as well as by favorable child welfare outcomes due to B&B HV program participation.

Population Served

Applied Survey Research (2019) reported that B&B directly served 5,430 families residing in Sacramento County during fiscal year 2018–2019, including 5,326 parents and 2,469 children. The program serves at-risk families who live in high-need neighborhoods that are characterized by high birth rates, lower incomes, and higher-than-average rates of Child Protective Services (CPS) referrals and substantiated reports. During the 2018–2019 fiscal year, 39 and 24 percent of the population served identified as Hispanic/Latino and Black/African American, respectively. Almost three-quarters of the population served was female, more than 60 percent indicated English was their primary language, and 50 percent were between 24 and 44 years of age (i.e., the primary age for becoming a parent). Additionally, 83 percent of the parents served were mothers. For the B&B HV program specifically, Applied Survey Research (2019) reported that 1,515 unduplicated parents received B&B HV services during the 2018–2019 fiscal year. Fourteen percent of them (i.e., 217) were referred to the program by CPS and 2,258 children were directly served through B&B HV programming.

B&B HV AmeriCorps State and National members are responsible for developing a relationship with B&B HV program participants. They are to strengthen participants' parenting skills, teach them how to support their child's development, and enhance participants' self-sufficiency through use of the NPP curriculum. Specifically, these B&B HV AmeriCorps members do the following: provide one-on-one parenting education during scheduled weekly home visits; administer AAPI assessments to identify the support needs of parents; facilitate NPP lessons and other activities that encourage parent-child communication and interaction; model nurturing attitudes and behaviors; provide referrals to community services and resources, and educate parents on child and adolescent socio-emotional and cognitive development among other services.¹

B&B HV Program Impacts: Selected Evaluation Results

LPC Consulting Associates, Inc. (2017) conducted a quasi-experimental program evaluation of the B&B HV program's performance and impact. According to the evaluation report, mothers who participated in the B&B HV program for one hour or more were 29 percent less likely to have substantiated CPS referrals post-program. This finding was statistically significant.

¹ Service Year. (n.d.). AmeriCorps Birth & Beyond Home Visitor at The Child Abuse Prevention Center-Birth & Beyond. <https://serviceyear.org/bb/ameri-corps-birth-beyond-home-vis/>.

Return on Investment Study Methods

The methodology for the B&B HV program ROI study consisted of the following components:

- 1. Measuring and monetizing program benefits.** This includes using data from a previous evaluation and other third-party sources to determine the benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and government. The benefits realized across stakeholder groups include:
 - **Children of B&B HV program participants.** B&B HV program participants' children benefit from increased lifetime earnings due to gains in secondary education that stem from child maltreatment prevention.
 - **B&B HV AmeriCorps members.** B&B HV AmeriCorps members benefit from:
 - a) Living allowances and education awards
 - b) Increased earnings due to reduced unemployment
 - c) Increased lifetime earnings due to increased post-secondary education derived from the use of education awards
 - **Government.** Government benefits from income, Social Security, and Medicare tax revenue from B&B HV AmeriCorps members' increased earnings, and sales tax revenue from the increased economic activity that results from those increased earnings. Government also benefits from reduced spending on corrections, public assistance, and social insurance and increased tax revenue associated with the increased educational attainment of B&B HV AmeriCorps members that is derived from their use of education awards post-service. Government also benefits from the tax revenue from B&B HV AmeriCorps members' living allowances and education awards. Finally, government benefits from lifetime cost savings in healthcare, child welfare, criminal justice, and special education as well as from an increase in lifetime taxes paid due to child maltreatment prevention.

This ROI analysis monetized B&B HV program benefits in 2020 dollars.

- 2. Estimating forgone benefits (opportunity costs).** This ROI analysis estimated two types of forgone benefits. Because of AmeriCorps member's participation in the B&B HV program, they forgo wages they could have earned from other employment. Similarly, because of AmeriCorps and other funders' investment in the B&B HV program, the funders forgo returns from other investments. These forgone benefits are also referred to as "opportunity costs."

The first was the professional opportunity cost to B&B HV AmeriCorps members for their period of national service, during which they could have earned more pay by doing other work. This included both the forgone earnings of B&B HV AmeriCorps members and the associated tax revenue for government.

The second was the investment opportunity cost for B&B HV program funding that could have been used for other purposes. The analysis estimated the investment opportunity cost for both government and private funders to be the forgone return of investing program funds into U.S. Treasury bonds. The rates of return for U.S. Treasury bonds provide a market-based estimate of return for low-risk investments.

For the ROI estimates, the analysis subtracts forgone benefits from program benefits to calculate *net benefits*. The net benefits are then compared to program costs.

- 3. Assessing program costs.** The Child Abuse Prevention Center (CAPC) provided B&B HV program costs for the 2019–2020 program year. Only the program costs that support the activities and positions of B&B HV AmeriCorps members are included in this study. These program costs included the portion of the AmeriCorps State and National grant that supports the B&B HV program, the education awards received by B&B HV AmeriCorps members, and the match funding provided by state and local governments that supports the B&B HV program.
- 4. Calculating the ROI.** The ROI analysis consists of three ROI calculations: 1) *total benefits per federal dollar*, 2) *total benefits per funder dollar*, and 3) *federal government benefits per federal dollar*. This analysis calculated the value of these three ROI calculations under three scenarios representing different assumptions about the persistence of program outcomes. As mentioned, the benefits used to calculate the ROI are the *net benefits* associated with the program (the program benefits minus the forgone benefits).

This analytical framework includes only those benefits that could be reasonably monetized given the available data, and that likely would not have occurred without the B&B HV program. Figure ES 1 shows how B&B HV program activities can result in benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and government.

Figure ES 1. Benefits among Stakeholder Groups Derived from the B&B HV Program

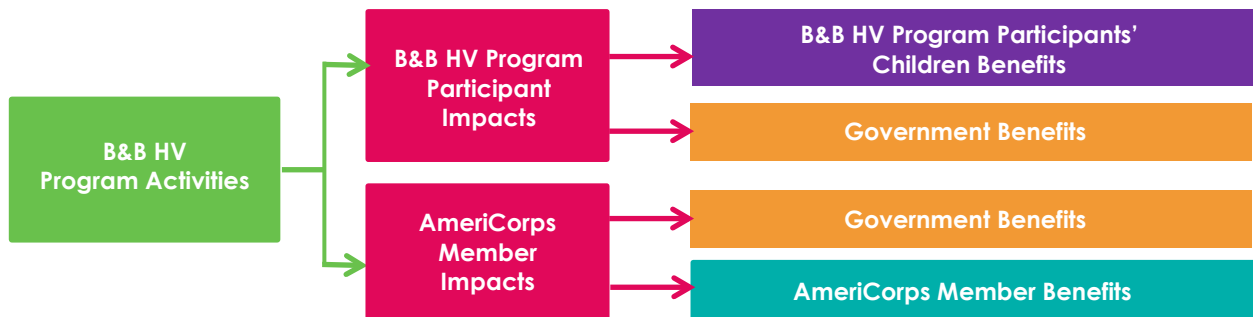


Table ES 1 shows the benefits, forgone benefits (opportunity costs), and costs that are included in each of the three types of ROI calculations.

Table ES 1. Benefits, Forgone Benefits, and Costs Included in the ROI Calculations

ROI Calculation	Benefits	Forgone Benefits	Costs
Total Benefits per Federal Dollar	<ul style="list-style-type: none"> All B&B HV AmeriCorps members, B&B HV program participants' children, and government benefits derived from the program 	<ul style="list-style-type: none"> Forgone benefits from the total professional opportunity cost Forgone benefits from the Federal investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding
Total Benefits per Funder Dollar	<ul style="list-style-type: none"> All B&B HV AmeriCorps members, B&B HV program participants' children, and government benefits derived from the program 	<ul style="list-style-type: none"> Forgone benefits from the total professional opportunity cost Forgone benefits from the total investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding All match funding
Federal Government Benefits per Federal Dollar	<ul style="list-style-type: none"> Additional federal government tax revenue generation and reduced spending attributable to the program 	<ul style="list-style-type: none"> Forgone benefits from the Federal professional opportunity cost Forgone benefits from the Federal investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding

Available data established that B&B HV AmeriCorps members enjoy earnings impacts as a result of serving with the B&B HV program. However, the data do not establish the duration of those benefits. To address a range of possible durations for those benefits, the analysis includes three scenarios:²

- **Short-term.** This scenario assumes short-term earnings impacts. The assumption is that earnings impacts are limited to a single year after program exit. This scenario also assumes no lifetime benefits are realized.
- **Medium-term.** This scenario assumes a longer duration of earnings impacts. The assumption is that earnings impacts last 15 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars.³ This scenario also assumes only half of the net present value of lifetime benefits is realized.
- **Long-term.** This scenario assumes sustained earnings impacts throughout B&B HV AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars. This scenario also assumes the entire net present value of lifetime benefits is realized.

The long-term scenario (i.e., 30 years of sustained employment and earnings benefits) represents roughly a lifetime of working years for a given person while the short-term scenario assumes benefits for only the year after program participation or service is completed. The medium-term scenario (i.e., 15 years of sustained employment and earnings benefits) represents the midpoint between these two scenarios.

Program Benefits, Forgone Benefits (Opportunity Cost), and Program Costs

Table ES 2 shows the estimates of monetized benefits of the B&B HV program by stakeholder group for each of the three scenarios. The majority of monetized benefits are realized by B&B HV AmeriCorps members and the federal government. In all three scenarios, both B&B HV AmeriCorps members and the federal government combined realized 87 percent or more of program benefits.

² These three scenarios consider varying durations of how long increased employment and earnings benefits last for B&B HV AmeriCorps members. They also consider varying durations for lifetime benefits that stem from the B&B HV program. For example, lifetime benefits in terms of decreased public assistance, social insurance, and corrections costs result from B&B HV AmeriCorps members' higher educational attainment post-service. The analysis estimates lifetime benefits differently in the three scenarios. Specifically, the net present value of the entire lifetime benefit is realized for the long-term scenario, half of the net present value of the lifetime benefit is realized for the medium-term scenario, and no lifetime benefit amount is realized for the short-term scenario.

³ The Office of Management and Budget (1992) defines a discount rate as, "The interest rate used in calculating the present value of expected yearly benefits and costs" (p. 18). Regarding the 3 percent discount rate, see Office of Management and Budget (2003).

Table ES 2. Program Benefits by Recipient

Recipient	Benefits by Scenario (2020\$)*		
	Short term	Medium term	Long term
Children of B&B HV Program Participants (percent of total)	\$- (0%)	\$24,857 (1%)	\$49,714 (1%)
B&B HV AmeriCorps Members (percent of total)	\$875,969 (81%)	\$1,736,318 (66%)	\$2,404,952 (61%)
Federal Government (percent of total)	\$146,690 (14%)	\$609,767 (23%)	\$1,038,050 (26%)
State/Local Governments (percent of total)	\$59,690 (6%)	\$274,224 (10%)	\$475,784 (12%)
Total (Total percent)	\$1,082,349 (100%)	\$2,645,166 (100%)	\$3,968,500 (100%)

*Numbers may not sum due to rounding.

Table ES 3 shows the breakdown of forgone benefits of both members and funders because of their participation and investment in the B&B HV program. These forgone benefits are subtracted from the program benefits (shown above) to calculate the net benefits of the program. Those net benefits are then compared to program cost to calculate the ROI. These forgone benefits are referred to as the professional and investment opportunity costs.

The professional opportunity cost includes the post-tax earnings B&B HV AmeriCorps members forgo—and the associated taxes forgone—due to their service with the B&B HV program instead of other work. This opportunity cost is consistent across all three scenarios.

The investment opportunity cost represents the forgone accrued interest from investing B&B HV program funds (total funding and only federal funding, separately) into U.S. Treasury bonds instead of into the B&B HV program. The forgone accrued interest calculated varies by scenario because the analysis matched real interest rates for different maturity levels to each of the three scenarios. The period of forgone interest accrual was set to the length of each scenario: one year for the short-term, 15 years for the medium-term, and 30 years for the long-term.

Table ES 3. Forgone Benefits (Opportunity Cost) by Scenario

Forgone Benefits (Opportunity Cost)	ROI Scenario (2020\$)*		
	Short term	Medium term	Long term
Professional Opportunity Cost	\$396,300	\$396,300	\$396,300
Forgone Earnings of B&B HV AmeriCorps Members	\$296,719	\$296,719	\$296,719
Forgone Taxes from Forgone Earnings	\$99,581	\$99,581	\$99,581
Investment Opportunity Cost	\$17,440	\$323,594	\$756,439
Forgone Benefits from Federal Government Investment/returns	\$8,014	\$148,690	\$347,579
Forgone benefits from state/local government and other funder investment/return	\$9,426	\$174,904	\$408,860

*Numbers may not sum due to rounding.

Table ES 4 shows the cost of the B&B HV program for the 2019–2020 program year by funding source. The table underscores what portion of B&B HV program funds were provided by AmeriCorps compared to other stakeholder groups (i.e., match funding). The table also highlights a further breakdown of these two funding streams, where applicable. Overall, the total cost of the B&B HV program for this program year was \$1.3 million. Forty-six percent of the B&B HV program costs (around \$615,000) was funded by the federal government, consisting of AmeriCorps funding only. This amount includes the AmeriCorps State and National grant and the expected education awards. The remaining 54 percent (or roughly \$720,000) consisted of match funding from state and local governments; no funding was provided by the private sector.

Table ES 4. Program Cost by Funding Source for the B&B HV Program*

Funder	Funding Provided for the Program Year (\$)	Percent of Total (%)*
AmeriCorps	\$614,444	45.9%
Education Awards	\$182,332	13.6%
Grant	\$432,113	32.3%
State/Local Governments (i.e., Match Funding)	\$722,775	54.1%
Total	\$1,337,219	100.0%

*Numbers may not sum due to rounding.

ROI Results

This analysis developed three ROI estimates using the three scenarios (short-term, medium-term, and long-term). As noted above, the ROI calculations compare the net benefits of the B&B HV program with the program cost to calculate the ROI. Table ES 5 shows the program gross benefits, forgone benefits, net benefits, and cost of the B&B HV program, and each of their components, that are used to calculate the three ROIs.

Table ES 5. Program Benefits, Net Benefits and Program Costs by ROI Scenario

Benefits and Costs	ROI Scenario (2020\$)		
	Short term	Medium term	Long term
Total Program Gross Benefits	\$1,082,349	\$2,645,166	\$3,968,500
B&B HV Children (participants)	\$-	\$24,857	\$49,714
Member Benefits	\$875,969	\$1,736,318	\$2,404,952
Federal Government Benefits	\$146,690	\$609,767	\$1,038,050
State/Local Government/Other Funder Benefits	\$59,690	\$274,224	\$475,784
Total Forgone Benefits (Opportunity Cost)	\$413,740	\$719,894	\$1,152,739
Forgone Benefits to Members (Forgone Earnings Post Taxes)	\$296,719	\$296,719	\$296,719
Forgone Tax Revenue from Members Earnings	\$99,581	\$99,581	\$99,581
Forgone Tax Revenue Federal Government	\$79,461	\$79,461	\$79,461
Forgone Tax Revenue State/Local Government	\$20,120	\$20,120	\$20,120
Forgone Benefits from Total Investment (All Funders)	\$17,440	\$323,594	\$756,439
Forgone Benefits from Federal Government Investment	\$8,014	\$148,690	\$347,579
Forgone Benefits from State/Local Government Investment	\$9,426	\$174,904	\$408,860
Total Program Net Benefits (Total Program Gross Benefits – Total Forgone Benefits)	\$668,609	\$1,925,272	\$2,815,761
Net Benefits B&B HV Children	\$-	\$24,857	\$49,714
Net Benefits Members (Member Benefits – Forgone Benefits Members)	\$579,250	\$1,439,599	\$2,108,233

Benefits and Costs	ROI Scenario (2020\$)		
	Short term	Medium term	Long term
Net Benefits Federal Government (Federal Government Benefits – Forgone Tax Revenue to Federal Government – Forgone Benefits from Federal Government Investment)	\$59,215	\$381,616	\$611,010
Net Benefits State/Local Government and Other Funders (State/Local Government Benefits – Forgone Tax Revenue to State/Local Government – Forgone Benefits from State/Local Government and Other Funder Investment)	\$30,144	\$79,200	\$46,804
Program Cost	\$1,337,219	\$1,337,219	\$1,337,219
Federal Government Cost	\$614,444	\$614,444	\$614,444
Non-Federal Government Cost	\$722,775	\$722,775	\$722,775
ROI for Total Benefits per Federal Dollar (Total Program Net Benefits / Federal Government Cost)	\$1.10	\$3.13	\$4.58
ROI for Total Benefits per Funder Dollar (Total Program Net Benefits / Program Cost)	\$0.50	\$1.44	\$2.11
Federal Government Benefits per Federal Dollar (Net Benefits Federal Government / Federal Government Cost)	\$0.10	\$0.62	\$0.99

Table ES 6 shows the ROI results for the B&B HV program. The results are expressed as cost–benefit ratios, while maintaining the ROI terminology. Specifically, these ratios take the form of the sum of monetized benefits over the sum of applicable program costs. The ROIs expressed as cost–benefit ratios in this study can be interpreted as the amount of dollars returned for every \$1 of investment (or program cost).⁴

⁴ ROIs can be expressed in percentages or as ratios, such as in this study. Although not shown as a ratio in the results, the ROIs in this study show the amount of return for every \$1 invested.

Table ES 6. ROI Results for the B&B HV Program

ROI Calculation	ROI Scenario		
	Short term	Medium term	Long term
Total Benefits per Federal Dollar	\$1.10	\$3.13	\$4.58
Total Benefits per Funder Dollar	\$0.50	\$1.44	\$2.11
Federal Government Benefits per Federal Dollar	\$0.10	\$0.62	\$0.99

The B&B HV program produces strong returns for the medium- and long-term scenarios when benefits to B&B HV AmeriCorps members, children of B&B HV program participants, and state/local governments are included. This is indicated by the results of the *total benefits per federal dollar* and the *total benefits per funder dollar* ROI calculations for these two scenarios.

In the short-term scenario—where benefits for only one-year post-program are included—ROI's range from \$0.10 for *Federal benefits per federal dollar* to \$1.10 for *total benefits per Federal dollar*. An ROI that is below \$1 in the first year post-program is common in programs where there is an initial one-time investment made and benefits accrue in the following years. This is because it often requires several years of benefits to recoup the initial investment and generate positive returns. During the program, AmeriCorps members gain experience, skills, and knowledge that result in future benefits, such as improved employment and wages, which can be sustained throughout their working years.

In the medium-term scenario, all stakeholder groups realized a combined return of \$3.13 for every \$1 invested by the federal government in the B&B HV program. Moreover, for every \$1 invested in the B&B HV program from all funders, \$1.44 is returned to both society and government combined. For every \$1 invested by the federal government, the federal government alone receives a return of \$0.62.

For the long-term scenario, the ROI for *total benefits per federal dollar*, *total benefits per funder dollar*, and *federal government benefits per federal dollar* are \$4.58, \$2.11, and \$0.99, respectively.

The magnitude and direction of the ROI calculations are driven by several factors:

- Reduction in the Number of Children Abused or Neglected.** According to the findings from LPC Consulting Associates, Inc. (2017), the analysis estimated there would be a 29 percent reduction in the number of children who would experience *future* abuse or neglect because of the B&B HV program. Considering 19 percent of these children had a substantiated CPS allegation prior to their Parents' participation in the B&B HV program, this resulted in an additional 11 children not being victims of child abuse or neglect post-program. This increase in child maltreatment prevention concurrently drives increased lifetime earnings for these children as well as reduced lifetime government costs related to healthcare, child welfare, criminal justice, and special education.

- **Medium- and long-term accumulation of benefits.** In the short-term, two of the ROI calculations result in losses because only one year of B&B HV AmeriCorps members' post-program employment and earnings gains are factored in while the entire program cost is considered. Additionally, the short-term scenario does not include any lifetime benefits in terms of additional earnings, increased tax revenue, or reduced spending on corrections/criminal justice, public assistance, special education, child welfare, or social insurance that stem from the impacts of B&B HV AmeriCorps members and the children of B&B HV program participants. As these benefits accumulate over time, the analysis shows positive returns. This is indicated by the ROI results in the medium- and long-term scenarios (15 years, and 30 years post-program, respectively).
- **The employment outcomes of B&B HV AmeriCorps members.** According to Friedman et al. (2016), the percentage of AmeriCorps members unemployed was 5 percentage points lower six months after serving in AmeriCorps versus six months before. This gain in employment resulted in increased earnings and tax revenue.
- **The educational attainment outcomes of B&B HV AmeriCorps members.** AmeriCorps State and National members receive an education award after serving in an AmeriCorps program; the award is used by a portion of members to help pay for post-secondary degrees post-service. The additional educational attainment resulting from the use of the education award generates additional lifetime earnings for B&B HV AmeriCorps members and additional lifetime tax revenue and savings for government.

Government funding serves as a catalyst for private funding of evidence-based social services programs. For the ROI calculations of 1) *total benefits per federal dollar* and 2) *total benefits per funder dollar*, AmeriCorps's requirement of match funding also contributed to the magnitude of outcomes. Federal government funding of the B&B HV program served as a catalyst for other funding, specifically that from state and local governments. This additional funding—amounting to about \$720,000 for the B&B HV program for the most recent program year—allowed the B&B HV program to serve more parents and families than otherwise would have been served under the federal funding alone. Though it may not impact the ROI, because it is a per unit metric, match funding leads to greater investment in the B&B HV program and thus to a greater impact as more individuals and families are served.

Introduction

AmeriCorps contracted with ICF Incorporated, LLC (hereafter ICF) to explore and quantify the return on investment (ROI) of several programs that rely on national service—specifically AmeriCorps—as a major resource to sustain operations. ROI analyses measure the performance of programs and build the base of evidence for future resource allocation decisions. ROI study results demonstrate the value of AmeriCorps programming to relevant stakeholders.

This project began with a comprehensive literature review and preliminary assessments of whether ROI analyses were feasible for five national service programs. These feasibility studies included thorough reviews of these programs' recent evaluations, detailed logic models, proposed ROI analysis methodologies for each program, and a scorecard mechanism that determined the viability of conducting an ROI analysis for each selected program.

Upon completion of five feasibility studies, AmeriCorps selected four programs to be the subject of ROI studies, for Fiscal Year 2021: Habitat for Humanity AmeriCorps, Washington Conservation Corps, YouthBuild AmeriCorps, and the Birth & Beyond Home Visitation Program. This ROI study measures the benefits of the Birth & Beyond (B&B) Home Visitation (HV) Program against its costs based on the analytical approach and data sources specified in its respective feasibility study.

This study is organized into five sections:

- **Program Description** describes the program's design, activities, and objectives, along with the role that national service (specifically AmeriCorps) plays in its operation. This section also provides a brief history of past evaluations, outlines the factors that made this program a strong selection for an ROI study, underscores the population this program serves, and identifies a potential set of comparable ROI estimates for the B&B HV Program.
- **ROI Methodology** outlines how this analysis used various data sources to monetize benefits derived from the B&B HV Program, describes its associated program costs, and explains how opportunity costs were calculated.
- **Benefits, Forgone Benefits (Opportunity Cost), Program Costs, and ROI Results** provides a detailed description of the program benefits, forgone benefits (opportunity cost), and program costs that are inputs into the ROI analyses and presents the results of the three ROI calculations across different assumptions.
- **Recommendations for Further Research** explores ways AmeriCorps and others could further build the evidence base for this program and similar programs, including how to address limitations of this study.
- **Conclusion** summarizes key points from the ROI study overall.

Program Description

Birth & Beyond (B&B) is a parenting education and support intervention program designed to reduce child abuse and neglect. It is implemented across nine local Family Resource Centers (FRCs) in Sacramento County, California and is funded through California Volunteers (the California State Service Commission) as a subgrantee. B&B is managed overall by the Child Abuse Prevention Center (CAPC)—whose founding agency is the Child Abuse and Prevention Council of Sacramento—a statewide training, education research, and resource center focused on strengthening children, families, and communities. The FRCs are operated by six nonprofit partners: Folsom Cordova Community Partnership, La Familia Counseling Center, Mutual Assistance Network, River Oak Center for Children, Sacramento Children's Home, and WellSpace Health. B&B is a product of the Family Support Collaborative, which was created by the Sacramento County Board of Supervisors in 1998. The Family Support Collaborative is designed to broadly facilitate public and private sector collaboration to prevent child abuse, encourage early intervention, and increase treatment locally. The target population for B&B is high-risk parents who are expecting children or already have children, reside in Sacramento County, lack parenting experience, and have a high need for social support. AmeriCorps State and National members, along with other program staff and volunteers, support B&B by serving at FRCs. They provide linguistically and culturally diverse family services, short-term crisis intervention services, home visitation services, and an extensive network of resources for families in high-need communities at no cost.

The B&B HV program uses professionals and AmeriCorps State and National members to provide weekly in-home case management and parenting lessons to program participants for a minimum of two months. The B&B HV program leverages the evidence-based curriculum provided by the Nurturing Parenting Program (NPP) model. The NPP model helps parents develop an empathetic relationship with their children, identify and apply positive parenting approaches, and get referrals to community resources for health education. The B&B HV program is designed to improve bonding, parent-child relationships, and child behavior so children can reach their full potential while parents receive the support they need in the comfort of their own homes. There are three ways parents can be referred to the B&B HV program: directly through Child Protective Services (CPS), hospitals, or self-referral. Once enrolled in the program, parents are required to take the Adult Adolescent Parenting Inventory (AAPI) assessment, which measures a parent's risk for child maltreatment by evaluating their parenting beliefs and practices. Based on their intake scores, parents are categorized into one of three service level groups: prevention, intervention, or treatment. Given their service level group, they receive a specific set of lessons and suite of services.

B&B HV AmeriCorps State and National members are responsible for developing a relationship with B&B HV program participants. They are to strengthen participants' parenting skills, teach them how to support their child's development, and enhance participants' self-sufficiency through use of the NPP curriculum. Specifically, these B&B HV AmeriCorps members:

- Provide one-on-one parenting education during scheduled weekly home visits
- Administer AAPI assessments to identify support needs of parents
- Facilitate NPP lessons and other activities that encourage parent-child communication and interaction
- Help parents develop *family nurturing plans* that prioritize positive parenting practices
- Model nurturing attitudes and behaviors
- Provide referrals to community services and resources
- Educate parents on child and adolescent socio-emotional and cognitive development.⁵

They also perform case management duties and serve on-site at FRCs to facilitate parenting education workshops.

Population Served

According to Applied Survey Research (2019), B&B as a whole—not just the B&B HV program specifically—directly served 5,430 families residing in Sacramento County across its array of program offerings during fiscal year 2018–2019. The population served included 5,326 parents and 2,469 children in total. The program is designed to serve families with at-risk backgrounds. Because of this, B&B's FRCs are strategically located in high-need neighborhoods that are characterized by high birth rates, lower incomes, and higher rates of CPS referrals and substantiated reports than the county average. These neighborhoods include Arden Arcade, Del Paso Heights, Meadowview, North Highlands, North Sacramento, Oak Park, Rancho Cordova, South Sacramento, and Valley Hi. During the 2018–2019 fiscal year, 87% of the population served (i.e., both parents and children who directly received B&B services) were non-white only, while 39 and 24 percent of the population served identified as Hispanic/Latino and Black/African American, respectively. Almost three-quarters of the population served was female, more than 60 percent indicated English was their primary language, and 50 percent were between 24 and 44 years old. A detailed segmentation of these demographic characteristics for the population served during this fiscal year is listed in Table 1. Of note, Applied Survey Research (2019) indicated that of the 5,065 parents with data available, 83 percent were mothers and 17 percent were fathers. The gender

⁵ Service Year. (n.d.). AmeriCorps Birth & Beyond Home Visitor at The Child Abuse Prevention Center-Birth & Beyond. <https://serviceyear.org/bb/amicorps-birth-beyond-home-vis/>.

distribution of the 2,469 children directly served across B&B's program offerings was 49 percent female and 51 percent male.

Table 1. Selected Demographic Characteristics of Population Served Through B&B During Fiscal Year 2018-2019⁶

Characteristic	Percent (%) [*]
Race/Ethnicity	
Hispanic/Latino	39
Black/African American	24
White	13
Asian	6
Multiracial	6
Other	12
Primary Language	
English	63
Spanish	25
Other	12
Gender	
Female	72
Male	28
Age	
0-2	11
3-5	7
6-11	11
12-17	4
18-23	8
24-44	50
45-54	5
55-69	3
70+	1

Source: Applied Survey Research (2019)

⁶ This fiscal year was representative of the most recent data available regarding the population served.

For the B&B HV program specifically, Applied Survey Research (2019) reported that 1,515 unduplicated parents received B&B HV program services during the 2018–2019 fiscal year. Namely, about 28 percent of parents who participated across B&B's program offerings during this fiscal year (i.e., 5,326) were B&B HV program participants. Additionally, fourteen percent of parents who participated in the B&B HV program (i.e., 217) were referred by CPS. Of this parent population, 33 percent were categorized under the prevention service level group while 48 and 19 percent were categorized under the intervention and treatment service level groups, respectively. These different service level groupings represent low, moderate, and high risk for perpetrating child abuse and neglect, respectively, and are based on parents' AAPI scores prior to B&B HV program enrollment.

B&B Evaluation History

B&B contracted LPC Consulting Associates, Inc. to carry out an evaluation (LPC Consulting Associates, Inc., 2013) that compared referrals to Sacramento County CPS prior to and following parents' participation in the B&B HV program. The evaluation analyzed the CPS outcomes for families served between July 2010 and June 2013. This 2010–2013 evaluation was updated a few years later and carried out by LPC Consulting Associates, Inc. and JBS International. This 2017 updated evaluation rigorously captured outcomes of interest related to participation in the B&B HV program. LPC Consulting Associates, Inc. (2017) used analytical methods to assess the impact of 96 AmeriCorps members who provided weekly home visits to participating parents from September 2013 to August 2015. The study measured the degree to which participating parents completed their program plans, evaluated whether parents experienced changes in their AAPI scores pre- vs. post- program participation, and compared the rate of CPS referrals received during and after program participation to families who did not receive B&B HV program services.

To determine the B&B HV program's impact on CPS recidivism, the authors conducted a quasi-experimental design study. The study constructed a comparison group using propensity score matching and CPS referral records from non-program participants who had similar demographic characteristics (e.g., race, primary language, and age), referral histories, severity of referrals, age at first referral, and total number of referrals received. The treatment group consisted of females who had a least one child 0 to 5 years old, were themselves between 16 and 45 years old, and had at least one CPS referral before enrolling in the B&B HV program. The analysis matched each B&B HV program participant with two non-participants, creating a 1:2 ratio. The final analytical sample included 493 and 985 individuals in the treatment and comparison group, respectively. Using longitudinal CPS referral data, a comprehensive scoring mechanism, and regression modeling, the authors predicted CPS outcomes at the individual level for both research groups. According to the evaluation report, mothers who participated in the B&B HV program for one hour or more were 29 percent less likely to have substantiated CPS referrals post-program. This finding was statistically significant.

Selection of B&B HV Program for the AmeriCorps ROI Project

ICF recommended making the B&B HV program the subject of an ROI study because a rigorous evaluation showed that the program improves participants' parenting skills and attitudes, and reduces CPS referrals. An ROI study for the B&B HV program would advance how the field can monetize favorable child welfare-related outcomes. Additionally, this would be the first AmeriCorps ROI study in the *Healthy Futures* focus area. It is important to note that B&B HV services are part of a larger array of B&B services supported by AmeriCorps members. Although a local program that operates in Sacramento County, California, B&B as a whole served more than 5,300 parents during fiscal year 2018–2019, according to Applied Survey Research (2019). Of those parents, more than 1,500 received B&B HV services specifically. ICF's decision to focus on the B&B HV program was based on the rigorous evaluation of that component of B&B's offerings.

Comparable ROI Estimates

ROI studies of other programs that offer similar services provide context for a potential set of ROI estimates for the B&B HV program.

Nystrand et al. (2019) used data from a randomized controlled trial for five parent training programs in Sweden to measure their ROI. These five parenting education programs focused on strengthening the child-parent relationship and teaching positive parent management strategies. The study estimated reduced healthcare and education sector costs and increased long-term productivity (based on lifetime earnings between ages 20 and 65) for children whose parents participated in these programs. These benefits were benchmarked against program costs. Results indicated that all five interventions had a positive ROI ranging from \$5.96 to \$300 for every dollar invested. Similarly, in 2014, NEF Consulting completed a social return on investment (SROI) analysis for ChildFund's Responsive Parenting model.⁷ This was a program in Ecuador that offered group workshops, referrals to resources, and home visits to primary caregivers to help improve the health, nutrition, and development of their children. The methodology assessed outcomes from parents, their children, those who administer the program, and the community at-large. Results indicated that when considering only short-term outcomes, the benefits were double the initial investment. When long-term (lifetime) outcomes were considered, a social value of \$3.50 was returned for every \$1 invested. These are examples of ROIs for international programs similar in structure and services offered by the B&B HV program.

⁷ A social return on investment (SROI) analysis accounts for and measures broader economic, social, and environmental value derived from organizational or project activities. For more information on SROI methods and applications, please reference the following: Maldonado, M., & Corbey, M. (2016). Social Return on Investment (SROI): a review of the technique. *Maandblad Voor Accountancy En Bedrijfseconomie*, 90(3), 79–86. <https://doi.org/10.5117/mab.90.31266>.

There are also studies that measure the ROIs of home visiting and parenting education programs in the United States. Karoly et al. (2005) estimated that for every dollar spent on this type of programming, the return ranged from \$1.80 to \$5.70. This study examined two programs comparable to the B&B HV program. They were The Home Instruction Program for Preschool Youngsters and the Nurse-Family Partnership program. Using the random assignment outcomes from the evaluations of these programs, the authors determined how the program benefits government, program participants, and other beneficiaries in society. The authors monetized savings related to reduced spending on emergency room visits and other forms of healthcare, social welfare, and crime and delinquency. Another program comparable to the B&B HV program is the FATHER (Fostering Actions to Help Earnings and Responsibility) Project. It provides direct services to non-custodial fathers in Minnesota that are designed to help increase the employment of fathers and improve their parenting abilities, so they are equipped to better support their children economically and emotionally. Diaz et al. (2010) completed an ROI for this program using the program's outcomes and concluded that there was a return of \$3.41 for every dollar invested. This was the result when only the net economic value of program participants, their children, and taxpayers in terms of increased wages, child support payments, and taxes paid during one program year were quantified and included. When less tangible benefits that resulted from program participation were included, such as reduced criminal convictions, increased child literacy and development, and increased father engagement, the ROI increased to \$9.47 for every dollar invested. It is important to note that the FATHER project focuses on improving fathers' parenting skills and employability (through providing comprehensive job training and placement services) while the B&B HV program focuses solely on developing parenting skills.

Another program similar to the B&B HV program is Parents as Teachers. This is a global program that provides home visiting and parent education to families with children from before birth to kindergarten. It is designed to increase parents' knowledge about early childhood development, improve parenting practices, prevent child abuse and neglect, and increase children's school readiness. In 2012, a study conducted by the Washington State Institute for Public Policy (WSIPP) found that the program's Washington state operation returned \$1.18 for every dollar invested. The benefits quantified in the study included savings in crime, earnings from improved test scores, and savings from reduced child abuse and neglect. This study also cited the benefit-cost ratios of other child welfare programs located in Washington state that were studied. The resulting ROIs of these programs ranged from \$0.56 to \$14.65 for every dollar invested. Specifically, Lee et al. (2012) found that SafeCare had an ROI of \$14.65. This program provides family activities and at-home training curriculum for parents who are at risk of child maltreatment. Results from Lee et al. (2012) also indicated that Triple P- Positive Parenting Program had an ROI of \$6.06. This program helps parents enhance their parenting skills and confidence while providing resources and training to help them resolve their children's behavioral problems. The study provided detailed supplementary documentation that described the methodology and results for each of these selected child welfare programs located in Washington state. Kuklinski et al. (2020) carried out a cost-benefit analysis for a caregiver home visiting intervention

offered to CPS-involved families called Promoting First Relationships. The study captured benefits from avoided child welfare system costs, victim costs (e.g., healthcare and lost future earnings), and quality-of-life victim costs (e.g., pain, suffering, diminished quality of life, and psychological distress) using WSIPP's benefit-cost analysis model. It quantified a favorable ROI across three scenarios that included different assumptions.

ROI Methodology

The methodology for the B&B HV program ROI study consisted of the following components:

1. **Measuring and monetizing program benefits.** This includes using data from a previous evaluation and other third-party sources to determine the benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and government. The benefits realized across stakeholder groups include:
 - **Children of B&B HV program participants.** B&B HV program participants' children benefit from increased lifetime earnings due to gains in secondary education that stem from child maltreatment prevention.
 - **B&B HV AmeriCorps members.** B&B HV AmeriCorps members benefit from:
 - a) Living allowances and education awards
 - b) Increased earnings due to reduced unemployment
 - c) Increased lifetime earnings due to increased post-secondary education derived from the use of education awards
 - **Government.** Government benefits from income, Social Security, and Medicare tax revenue from B&B HV AmeriCorps members' increased earnings, and sales tax revenue from the increased economic activity that results from those increased earnings. Government also benefits from reduced spending on corrections, public assistance, and social insurance and increased tax revenue associated with the increased educational attainment of B&B HV AmeriCorps members that is derived from their use of education awards post-service. Government also benefits from the tax revenue from B&B HV AmeriCorps members' living allowances and education awards. Finally, government benefits from lifetime cost savings in healthcare, child welfare, criminal justice, and special education as well as from an increase in lifetime taxes paid due to child maltreatment prevention.

This ROI analysis monetized B&B HV program benefits in 2020 dollars.

2. **Estimating forgone benefits (opportunity costs).** This ROI analysis estimated two types of forgone benefits. The first was the professional opportunity cost to B&B HV AmeriCorps members for their period of national service, during which they could have earned more pay by doing other work. This included both the forgone earnings of B&B HV AmeriCorps members and the associated tax revenue for government. The second was the investment opportunity cost for B&B HV AmeriCorps program funding that could have been used for other

purposes. The analysis estimated the investment opportunity cost for both government and private funders based on the forgone return of investing program funds into U.S. Treasury bonds. The rates of return for U.S. Treasury bonds provide a market-based estimate of return for low-risk investments. For the ROI estimates, the analysis subtracted forgone benefits from program benefits to calculate net benefits

3. Assessing program costs. The Child Abuse Prevention Center (CAPC) provided B&B HV program costs for the 2019–2020 program year. It is important to note that B&B HV program services are part of a larger array of B&B services supported by AmeriCorps members. Given this, only the program costs that support the activities and positions of B&B HV AmeriCorps members were included in this study. The program costs included in this ROI are comprised of:

- The expected education award amount B&B HV AmeriCorps members will collectively use post-service
- The portion of the AmeriCorps State and National grant supplied by AmeriCorps that supports the B&B HV program
- The portion of match funding received from state and local governments that supports the B&B HV program

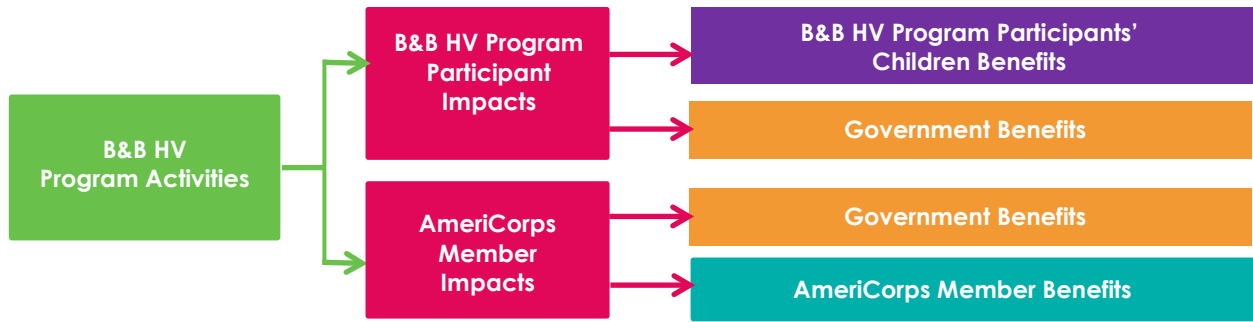
4. Calculating the ROI. The ROI analysis includes three ROI calculations, each assessed under three scenarios representing different assumptions about the persistence of program outcomes:

- Total benefits per federal dollar
- Total benefits per funder dollar⁸
- Federal government benefits per federal dollar

This analytical framework includes only those benefits that could be reasonably monetized given the available data, and that likely would not have occurred without the B&B HV program. Figure 1 shows how B&B HV program activities can result in benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and government.

⁸ The different funder groups whose investment is in this calculation include the federal government (i.e., AmeriCorps) and match funding from state and local governments.

Figure 1. Benefits among Stakeholder Groups Derived from the B&B HV Program



Available data established that B&B HV AmeriCorps members enjoy earnings impacts as a result of serving with the B&B HV program. However, the data do not establish the duration of those benefits. To address a range of possible durations for those benefits, the analysis includes three scenarios:⁹

- **Short-term.** This scenario assumes short-term earnings impacts. The assumption is that earnings impacts are limited to a single year after program exit. This scenario also assumes no lifetime benefits are realized.
- **Medium-term.** This scenario assumes a longer duration of earnings impacts. The assumption is that earnings impacts last 15 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars.¹⁰ This scenario also assumes only half of the net present value of lifetime benefits is realized.
- **Long-term.** This scenario assumes sustained earnings impacts throughout B&B HV AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars. This scenario also assumes the entire net present value of lifetime benefits is realized.

The long-term scenario (i.e., 30 years of sustained employment and earnings benefits) represents roughly a lifetime of working years for a given person while the short-term scenario assumes benefits for only the year after program participation or service is completed. The medium-term scenario (i.e., 15 years of sustained employment and earnings benefits) represents the midpoint between these two scenarios.

⁹ These three scenarios consider varying durations of how long increased employment and earnings benefits last for B&B HV AmeriCorps members. They also consider varying durations for lifetime benefits that stem from the B&B HV program. For example, lifetime benefits in terms of decreased public assistance, social insurance, and corrections costs result from B&B HV AmeriCorps members' higher educational attainment post-service. The analysis estimates lifetime benefits differently in the three scenarios. Specifically, the net present value of the entire lifetime benefit is realized for the long-term scenario, half of the net present value of the lifetime benefit is realized for the medium-term scenario, and no lifetime benefit amount is realized for the short-term scenario.

¹⁰ The Office of Management and Budget (1992) defines a discount rate as, "The interest rate used in calculating the present value of expected yearly benefits and costs" (p. 18). Regarding the 3 percent discount rate, see Office of Management and Budget (2003).

Monetizing Program Benefits, Forgone Benefits (opportunity cost), and Program Costs

This analysis monetized an array of benefits and included B&B HV program costs and expected opportunity costs—all in 2020 dollars—to assess the ROI of the B&B HV program. Additional details on the methodology employed and the calculations used for this analysis are in Appendix B.

Program Benefits

Outcomes of the B&B HV program result in monetizable benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and government. Table 2 summarizes these benefits and data sources by stakeholder group.

Table 2. Benefits Realized from the B&B HV Program by Stakeholder Group

Stakeholder Group	Benefits	Data Sources*
Children of B&B HV Program Participants	<ul style="list-style-type: none"> Additional lifetime earnings from increased educational attainment as a result of child maltreatment prevention 	<ul style="list-style-type: none"> CAPC LPC Consulting Associates, Inc. (2017) Dakil SR., Sakai C., Lin H., Flores G. (2011) Diette et al. (2017) Trostel (2015) Consumer Price Index (CPI; U.S. Bureau of Labor Statistics, n.d.)
B&B HV AmeriCorps Members	<ul style="list-style-type: none"> Additional earnings from reduced unemployment Additional lifetime earnings from increased educational attainment as a result of education awards Post-tax living allowances and education awards 	<ul style="list-style-type: none"> CAPC Friedman et al. (2016) Trostel (2015) Current Population Survey Annual Social and Economic Supplement (ASEC; U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) National Center for Education Statistics (NCES) (2019) NCES (2020) AmeriCorps (n.d.)

Stakeholder Group	Benefits	Data Sources*
Government	<ul style="list-style-type: none"> • Tax revenue from increased earnings by B&B HV AmeriCorps members post-program and sales tax revenue from the induced increased economic activity • Tax revenue from living allowances and education awards • Reduced lifetime spending on corrections, public assistance, and social insurance from increased educational attainment by B&B HV AmeriCorps members as a result of education awards • Lifetime tax revenue from increased educational attainment by B&B HV AmeriCorps members as a result of education awards • Lifetime cost savings in healthcare, child welfare, criminal justice, and special education as a result of child maltreatment prevention • Lifetime tax revenue from increased educational attainment by the children of B&B HV program participants as a result of child maltreatment prevention 	<ul style="list-style-type: none"> • Consumer Expenditure Survey (U.S. Bureau of Labor Statistics, 2021) • Federal and state income tax rates (El-Sibaie, 2019; Loughhead, 2020) • Social Security tax rate (Social Security Administration (SSA), 2020) • Medicare tax rate (SSA, 2020) • Combined state and average local sales tax rates (Cammenga, 2020) • Trostel (2015) • CPI (U.S. Bureau of Labor Statistics, n.d.) • AmeriCorps (n.d.) • American Community Survey (2019) (ACS; U.S. Census Bureau, n.d.) • CAPC • LPC Consulting Associates, Inc. (2017) • Peterson et al. (2018) • Fang et al. (2012) • Hyland (2015) • DeVooght et al. (2008) • Chicago Public Schools (n.d.)

*Usage of these data sources is discussed in more detail in the subsequent sections. Tax rates used on B&B HV AmeriCorps members' increased earnings, forgone earnings, education awards, and living allowances are national averages. See Appendix B for a detailed discussion.

Additional Lifetime Earnings from Increased Educational Attainment as a Result of Child Maltreatment Prevention (Benefit to the Children of B&B HV Program Participants)

Findings from LPC Consulting Associates, Inc. (2017) indicate that parents who received B&B HV program services were 29 percent less likely than those in the matched comparison group to have a subsequent substantiated CPS referral. This statistically significant outcome was used along with a baseline recidivism rate from Dakil SR, et. al (2011) to monetize additional lifetime earnings realized by the children of B&B HV program participants. According to Pollack (2016), substantiated CPS referrals signify

confirmed cases of child abuse or neglect. Given this and the results from LPC Consulting Associates, Inc. (2017), children of B&B HV program participants had a decreased probability of experiencing future abuse or neglect. Moreover, children who did not have a substantiated CPS allegation prior to their mother's participation in the B&B HV program (i.e., are not previously abused or neglected) have a decreased probability of ever becoming a victim of abuse or neglect.

The literature underscores that not being abused or neglected increased children's likelihood of completing secondary school. Specifically, Smith et al. (2012), Tanaka et al. (2014), and Allwood & Widom (2013) found that child abuse and neglect was associated with a lower likelihood of graduating high school. These secondary school education gains can result in increased earnings for children whose parents' participated in the B&B HV program. Specifically, according to the U.S. Bureau of Labor Statistics (2020), gains in secondary education translate to higher earnings.

Number of Additional Children Not Abused or Neglected

To estimate children's additional lifetime earnings due to child maltreatment prevention, this analysis first estimated the number of additional children who were not abused or neglected due to their parents' participation in the B&B HV program. To estimate this, the analysis used data from CAPC on the number of children ages 0 to 5 whose parents had prior CPS involvement within six months of the program start date and participated in the B&B HV program during the 2019–2020 program year and Applied Survey Research (2019) to determine the number of children per parent (1.49). This analysis then applied that number to the LPC Consulting Associates, Inc. (2017) finding that reported that the parent participants in the B&B HV program group were 29 percent less likely to have a substantiated CPS referral post-program. This is then further applied to the baseline recidivism rate from Dakil SR, et. al (2011), of 47%. Finally, CAPC data also indicated that 19.1 percent of children during the most recent program year had a substantiated CPS allegation during the six months prior to the start of the B&B HV program. The analysis removed this portion of the child population (i.e., who experienced abuse or neglect pre-program) to estimate the number of children who will not be victims of child abuse or neglect due to their parents' participation in the B&B HV program.

Number of Additional High School Graduates due to Child Maltreatment Prevention

According to Diette et al. (2017), females and males who were victims of violence as youth are more likely to drop out of high school relative to their peers who were never victims of violence. The study authors segmented findings by type of violence in which “home violence” was defined as either being badly beaten by parents or other caregivers, or witnessing serious fights at home as a child. Both instances definitionally constitute child abuse and neglect according to Child Welfare Information Gateway (2019). Diette et al. (2017) reported that girls and boys who are victims of home violence have high school dropout rates that are 6.8 and 4.6 percentage points higher than their peers, respectively. This analysis used the gender distribution of the children of B&B HV program participants—who had prior CPS involvement—for the most recent program year as provided by CAPC along with the data on the number of children not

abused or neglected due to their parents' B&B HV program participation (described above), to estimate the total number of additional high school graduates due to the B&B HV program, by gender. The number of additional girls and boys who were not abused or neglected—calculated in the previous section—was multiplied by these high school graduation rate differentials. This estimated the additional number of boys and girls who graduated high school due to their parents' participation in the B&B HV program.

Additional Lifetime Earnings Due to Additional Number of High School Graduates

Given these gains in secondary education, there is an associated increase in these children's earnings potential. Trostel (2015) quantified the differences in the average lifetime earnings between a high school graduate and someone with less than a high school education. The analysis multiplied this per-person lifetime earnings differential by the number of additional children estimated to graduate high school due to child maltreatment prevention that stemmed from the B&B HV program. This determined the total lifetime additional earnings realized by these children that is attributable to their parents' participation in the B&B HV program.

Post-Tax Living Allowances and Education Awards (Benefits to B&B HV AmeriCorps Members)

Some member-specific benefits realized due to AmeriCorps members serving with the B&B HV program include the post-tax living allowances AmeriCorps State and National members are allotted during their national service and the post-tax education awards they receive after service completion. All are considered taxable income and thus result in increased government revenue.¹¹ The post-tax living allowance and the education award amount that was used to repay student loans were included in the ROI analysis as direct one-time benefits to B&B HV AmeriCorps members.

Additional Earnings from Reduced Unemployment (Benefit to B&B HV AmeriCorps Members)

Evaluations have shown that serving in AmeriCorps fosters higher skill acquisition, increased educational attainment, and higher income from increased employment post-national service (Friedman et al., 2016; Markovitz et al., 2008; Spera et al., 2013; Zeidenberg et al., 2016). Friedman et al. (2016) found that unemployment among AmeriCorps members six months after their period of national service was 5 percentage points lower compared to six months before.¹² To monetize this decrease in unemployment, the analysis first determined the demographic distribution of B&B HV AmeriCorps State and National members who served during the most recent program

¹¹ The tax implications of the AmeriCorps member education award are stated here: AmeriCorps. (n.d.). Segal AmeriCorps Education Award. Retrieved from <https://americorps.gov/members-volunteers/segal-ameri-corps-education-award>

¹² See page 56 of Friedman et al. (2016).

year in terms of race/ethnicity, gender, age, and education level pre-service using data provided by CAPC. The analysis then proceeded to:

1. Estimate B&B HV AmeriCorps members' per-person average annual earnings (weighted by the above demographics) using data from the Current Population Survey's Annual Social and Economic (ASEC) Supplement for March 2019,
2. Multiply the 5-percentage-point reduction in unemployment from Freidman et al. (2016) to the number of B&B HV AmeriCorps members that served during the most recent program year to estimate the number of *additional* B&B HV AmeriCorps members employed post-service,
3. Multiply the demographically-weighted per-person average annual earnings by the number of additional B&B HV AmeriCorps members employed to estimate the total increased earnings attributable to national service.

The earnings metrics for B&B HV AmeriCorps members were applied and discounted based on the short-term, medium-term, and long-term scenarios to represent net present 2020 dollars. The post-tax B&B HV AmeriCorps members' projected earnings represents the additional income earned by AmeriCorps members attributable to serving with the B&B HV program.

Additional Lifetime Earnings from Increased Educational Attainment as a Result of Education Awards (Benefit to B&B HV AmeriCorps Members)

Another benefit derived from national service is the higher educational attainment of AmeriCorps members. AmeriCorps members in general—as documented in Friedman et al. (2016)—can use their education awards to

- a) Pay for additional post-secondary educational attainment or
- b) Repay student loans.

Friedman et al. (2016) reported that 46 percent of AmeriCorps State and National members used their education award to pursue additional post-secondary education while 33 percent used it to repay student loans.¹³

This analysis estimated the expected increase in lifetime earnings of B&B HV AmeriCorps members attributable to the use of education awards to pay for additional post-secondary schooling. Based on the findings from Friedman et al. (2016), this ROI analysis estimated the amount in post-tax education awards that B&B HV AmeriCorps members used to pay for additional educational attainment. The analysis then estimated the value of the additional educational attainment attributable to the education awards in terms of lifetime earnings using data from Trostel (2015). These estimated additional post-tax lifetime earnings were included as a benefit to B&B HV AmeriCorps members.

¹³ Friedman et al. (2016). op. cit. Exhibit VIII-6.

Tax Revenue Generation and Reduced Spending (Benefits to Government)

The benefits of the children of B&B HV program participants and B&B HV AmeriCorps members result in benefits to the various levels of government.

Benefits to Government from Increased Earnings by B&B HV AmeriCorps Members

Government benefits from increased earnings by B&B HV AmeriCorps members. Those benefits include:

- **Income tax revenue from increased earnings by B&B HV AmeriCorps members post-service.** Federal income taxes, state income taxes, Medicare taxes, and Social Security taxes were estimated for the additional pre-tax earnings of B&B HV AmeriCorps members based on 2020 rates. For both federal and state income taxes, the analysis estimated proportional tax rates representing the share of earnings paid in taxes.

To estimate proportional tax rates that reflect federal- and state-level progressive tax brackets and standard deductions, the amount of total taxes paid was divided by the pre-tax earnings per B&B HV AmeriCorps member. For the state income tax rate, the analysis weighted individual state-level rates by their respective state populations to estimate a weighted national tax rate to apply program-wide. A weighted national tax rate was used because B&B HV AmeriCorps members may disperse to various locations nationwide following their service terms and continue to migrate over the course of their working years.

- **Sales tax revenue from the increased economic activity that results from increased earnings by B&B HV AmeriCorps members post-service.** To estimate the additional sales tax revenue generated due to the additional post-tax earnings of B&B HV AmeriCorps members, the combined state and average local sales tax rate for the U.S.—weighted by states' populations—was calculated. This analysis applied that rate to the estimated taxable expenditures of B&B HV AmeriCorps members based on their post-service pre-tax earnings using Consumer Expenditure Survey data (U.S. Bureau of Labor Statistics, 2021).¹⁴ The resulting product was then applied to the share of post-tax earnings attributable to serving with the B&B HV program to estimate state and local government sales tax revenue.

¹⁴ To calculate the estimated taxable expenditures, Consumer Expenditure Survey (CES) Table 1203 was used from U.S. Bureau of Labor Statistics (2021). This table lists the annual expenditure means by pre-tax income tax brackets. Thus, the pre-tax earnings of B&B HV AmeriCorps members were used instead of their post-tax earnings to calculate this metric. Please visit this site for more details:

<https://www.bls.gov/cex/tables/calendar-year/mean-item-share-average-standard-error.htm#cu-income>.

Benefits to Government from Increased Educational Attainment by B&B HV AmeriCorps Members

Government benefits from increased post-secondary educational attainment by B&B HV AmeriCorps members. Those benefits include:

- **Tax revenue from education awards.** Education awards provided to B&B HV AmeriCorps members upon service completion are subject to taxes, resulting in additional government revenue.¹⁵ This ROI analysis applied federal income, state income, Social Security, and Medicare tax rates to the expected total amount of education awards to be given to B&B HV AmeriCorps members to estimate these additional taxes. Both estimated proportional federal and state income tax rates were used. Sales taxes were not estimated for education awards because they cannot be used for consumer purchases.
- **Reduced lifetime spending on corrections, public assistance, and social insurance from increased educational attainment as a result of education awards.** Higher educational attainment is associated with less dependence on government assistance programs and lower incarceration rates (Blagg & Blom, 2018; Harlow, 2003). Because B&B HV AmeriCorps members increased post-secondary educational attainment, due to the use of the education award, government spends less. For the monetization of these benefits, the analysis paired the expected increase in post-secondary educational attainment of B&B HV AmeriCorps members with the expected difference in per-person lifetime government cost savings from Medicaid, SNAP, unemployment insurance, worker's compensation, and corrections for individuals with different levels of educational attainment. The latter values were provided by Trostel (2015).
- **Lifetime tax revenue from increased educational attainment as a result of education awards.** Another benefit related to B&B HV AmeriCorps members captured in this ROI study is the lifetime tax revenue generated from members' higher post-secondary educational attainment due to the use of the education award. Here, the estimated increase in B&B HV AmeriCorps members' post-secondary educational attainment was paired with the expected difference in per-person lifetime taxes for individuals with different levels of education as provided by Trostel (2015). This lifetime tax revenue includes federal income, state income, property, Social Security, Medicare, and sales taxes derived from use of the education award.

¹⁵ The tax implications of the AmeriCorps member education award are stated here: AmeriCorps. (n.d.). Segal AmeriCorps Education Award. Retrieved from <https://americorps.gov/members-volunteers/segal-ameri-corps-education-award>

Benefits to Government from Living Allowances Received by B&B HV AmeriCorps Members

The living allowance provided to B&B HV AmeriCorps members during their service term is considered taxable income. This analysis applied a proportional federal income tax rate as well as Medicare and Social Security tax rates to the pre-tax living allowance amount received by B&B HV AmeriCorps members for the most recent program year. The analysis also applied a sales tax rate to the estimated taxable expenditures of B&B HV AmeriCorps members based on their post-tax living allowance amount to estimate additional state and local government revenue.

Benefits to Government from Child Maltreatment Prevention

Government benefits when children are not victims of child abuse or neglect. Peterson et al. (2018) estimated the lifetime costs borne by government due to nonfatal child maltreatment. The authors calculated the lifetime economic cost per victim of child abuse, augmenting the results previously published in Fang et al. (2012), and segmented estimates across the following cost categories: short-term healthcare, long-term healthcare, child welfare, criminal justice, and special education. Additional information regarding the definitions of these different cost categories is in Appendix B.

To estimate government cost savings, this analysis multiplied the lifetime costs by the number of additional children who were not abused or neglected because of their parents' participation in the B&B HV program. The analysis parsed out these cost savings across the different levels of government (e.g., federal and non-federal) using data from Peterson et al. (2018), Fang et al. (2012), and other third-party sources. The result estimated the total government lifetime cost savings—segmented by level of government—due to the favorable child welfare outcomes of the B&B HV program.

Government also benefits from increased lifetime taxes paid due to the secondary education gains of children who are not abused or neglected due to their parents' participation in the B&B HV program. Specifically, Trostel (2015) provides the amount of lifetime taxes paid for someone who graduates high school and for someone with less than a high school education. The difference between these metrics represents the additional lifetime tax revenue generated for every additional high school graduate. To estimate this benefit to government, the analysis multiplied the additional lifetime taxes paid between these two education levels by the number of additional children who graduate high school due to child maltreatment prevention.

Forgone Benefits (Opportunity Costs)

The analysis estimated forgone benefits of both members and funders because of their participation and investment in the B&B HV program. These forgone benefits were subtracted from the program benefits (shown above) to calculate the net benefits of the program. Those net benefits were then compared to program cost to calculate the ROI. These forgone benefits are referred to as the professional and investment opportunity costs, described below.

Professional Opportunity Cost to B&B HV AmeriCorps Members

The first opportunity cost was the professional opportunity cost to B&B HV AmeriCorps members for their period of national service, during which they could otherwise be working and earning higher pay. To calculate this, this analysis estimated what B&B HV AmeriCorps members would have earned if they did *not* serve with the B&B HV program. Specifically, this analysis estimated the weighted average annual earnings of this group as well as their weighted unemployment rate using the demographic distribution of B&B HV AmeriCorps members for the 2019–2020 program year and ASEC data. The demographics included were gender, age, race/ethnicity, and the highest level of education pre-service. The weighted average annual earnings represent the expected earnings of the B&B HV AmeriCorps members if they were employed, but *not* serving with the B&B HV program. The weighted unemployment rate represents how many of the B&B HV AmeriCorps members would have been unemployed if they did *not* serve with the B&B HV program. These weighted metrics were first used to estimate the portion of B&B HV AmeriCorps members who would have been employed and then to calculate the aggregate earnings those employed individuals would have made without serving with the B&B HV program. Namely, they are used to calculate the aggregate post-tax earnings this population would forgo due to serving with the B&B HV program for one year.

Some of the forgone earnings would have been paid in the form of taxes. To appropriately allocate opportunity costs between B&B HV AmeriCorps members and government, the analysis estimated the reduced tax revenue for federal income, state income, Social Security, and Medicare taxes. The analysis also estimated the reduction in sales tax from reduced consumption. These taxes combined represent what the various levels of government are forgoing in tax revenue when these individuals decide to serve with the B&B HV program instead of working for higher pay. The summation of all forgone taxes and the forgone post-tax earnings of B&B HV AmeriCorps members is called the total professional opportunity cost.

It is important to note that in the *federal government benefits per federal dollar* ROI calculation, only federal government (not total) benefits are included. Given this, only federal components of the professional opportunity cost are subtracted from all federal government benefits (e.g., tax revenue and cost savings) realized as a result of the B&B HV program in this ROI calculation. The parts of the professional opportunity cost removed from these total federal government benefits include the federal income, Social Security, and Medicare taxes forgone due to B&B HV AmeriCorps members forgoing earnings during their service year. The summation of these forgone federal taxes is called the federal professional opportunity cost.

Investment Opportunity Cost to Funders

The second opportunity cost used in this ROI analysis is an investment opportunity cost. It estimates the expected forgone return if all funds used to support the B&B HV program during the 2019–2020 program year were invested in U.S. Treasury bonds instead. To calculate this, the analysis matched 2019 real interest rates provided by the Office of Management and Budget (2020) to each of the scenarios leveraged in this ROI

analysis: short-term, medium-term, and long-term.¹⁶ The rates of return for U.S. Treasury bonds provide a market-based estimate of return for low-risk investments.

The real interest rate for the 3-year maturity was used for the short-term scenario, the average between the 10-year and 20-year maturity rates was used as the rate for the medium-term scenario, and the 30-year maturity rate was used for the long-term scenario. These real interest rates were 1.3, 1.45, and 1.5 percent, respectively. Also, the number of time periods elapsed on these bonds was equal to the number of years the short-term, medium-term, and long-term scenarios assume B&B HV AmeriCorps members' employment and earnings gains are sustained, one year, 15 years, and 30 years, respectively. These bonds compound bi-annually according to the Department of Treasury (n.d.). The forgone accrued interest was calculated for each of the three scenarios if the funding amount used to support the B&B HV program was instead invested.

Note that for 1) the *federal government benefits per federal dollar* and 2) the *total benefits per federal dollar* ROI calculations, the investment opportunity cost subtracted from the benefits in these calculations is the forgone accrued interest from investing only the federal funds into these U.S. Treasury bonds. This is called the federal investment opportunity cost. This is because these ROI calculations only include federal government (not total) program costs. For the other ROI calculation estimated in this analysis, the investment opportunity cost subtracted from the benefits realized is the forgone accrued interest from investing all B&B HV program funds (both federal and non-federal) into these U.S. Treasury bonds. This is called the total investment opportunity cost. See Appendix B for details.

Program Costs

The costs for the B&B HV program, used for this ROI analysis, include federal and required match funding and any other funding used to support program operations. The program costs are specific to funding the activities and positions of B&B HV AmeriCorps members whose outcomes are measured in this analysis.

Table 3 shows the segmentation of B&B HV program costs by funder.¹⁷ The federal funds included the AmeriCorps State and National grant. Federal dollars also helped pay for the expected education award amounts granted to B&B HV AmeriCorps members once they completed their service term. Funds provided by state/local governments represent the match funding the B&B HV program received for the program year.

¹⁶ The analysis used 2019 real interest rates for U.S. Treasury bonds because the B&B HV program year analyzed began in 2019.

¹⁷ Program cost data were provided by the chief program officer at CAPC.

AmeriCorps contributions (including both the grant and the expected education award amounts) covered nearly half of program costs.¹⁸ State and local governments provided match funding that represented roughly 54 percent of total B&B HV program costs. Moreover, this match funding was an amount equal to about 118 percent of AmeriCorps federal funds. This match provides the B&B HV program with the resources to offer more services and supports to local parents than would be otherwise available only under the AmeriCorps federal funds. That translates into increased aggregate benefits realized across stakeholder groups.

Table 3. B&B HV Program Costs by Funder Type

Funder	Funding Provided for the Program Year (\$)	Percent of Total (%)
AmeriCorps	\$614,444	45.9%
State/Local Governments (i.e., Match Funding)	\$722,775	54.1%
Total	\$1,337,219	100.0%

ROI Study Limitations

Study limitations include the ability to capture all benefits that stem from the B&B HV program due to the lack of available data.

Limitations to the Array of Benefits Captured

Some research has determined that parents who participate in parenting education and support programs that are similar to the B&B HV program experience positive benefits. These include reductions in depression, PTSD, and caregiving helplessness—as noted in Muzik et al. (2015)—and increased odds of school continuation as noted in Barnett et al. (2007). Such outcomes are not included in this ROI study. This is because either the benefits could not be defensibly monetized given the available data and sparse literature, or the interventions evaluated in these studies were too different from the services provided by the B&B HV program. Thus, this ROI analysis does not capture any benefits realized by the parents themselves due to their participation in the B&B HV program. Only the benefits realized by their children could be reasonably monetized—given the available literature—and therefore is included.

¹⁸ The education award comes from the National Service Trust. This is a line-item in AmeriCorps's annual budget approved by Congress every year. Thus, the expected education award amounts to be realized by B&B HV AmeriCorps members post-service is grouped with the AmeriCorps State and National grant as being supplied by AmeriCorps. For more information, see: https://americorps.gov/sites/default/files/documents/CNCS%20FY%202021%20Congressional%20Budget%20Justification%20w%20IG%20Message%20%28Final%29_508.pdf.

Additionally, the outcome data from LPC Consulting Associates, Inc. (2017) were limited to female B&B HV program participants who had CPS involvement within six months from the program's start date and children aged 0 to 5. This study did not capture the estimated probabilities of having future substantiated CPS referrals for male B&B HV program participants. It also did not capture the CPS recidivism outcomes for female B&B HV program participants with older children who *did not* have a previous CPS history. As a result, outcomes could not be monetized for these two subgroups of B&B HV program participants and thus were not included in this ROI analysis.

Program Benefits, Forgone Benefits (opportunity cost), Program Costs, and ROI Results

The ROI for the B&B HV program measures the benefits of the program compared to its costs to determine the return to different stakeholders. This section provides ICF's estimates of program benefits, forgone benefits (opportunity cost), program costs, and resulting ROI.

Program Benefits

Table 4 shows the estimates of monetized benefits of the B&B HV program by stakeholder group for each of the three scenarios. The majority of monetized benefits are realized by B&B HV AmeriCorps members and the federal government. In all three scenarios, both B&B HV AmeriCorps members and the federal government combined realized 87 percent or more of program benefits.

Table 4. Program Benefits by Recipient

Recipient	Benefits by Scenario (2020\$)*		
	Short term	Medium term	Long term
Children of B&B HV Program Participants (percent of total)	\$- (0%)	\$24,857 (1%)	\$49,714 (1%)
B&B HV AmeriCorps Members (percent of total)	\$875,969 (81%)	\$1,736,318 (66%)	\$2,404,952 (61%)
Federal Government (percent of total)	\$146,690 (14%)	\$609,767 (23%)	\$1,038,050 (26%)
State/Local Governments (percent of total)	\$59,690 (6%)	\$276,224 (10%)	\$475,784 (12%)
Total (Total percent)	\$1,082,349 (100%)	\$2,645,166 (100%)	\$3,968,500 (100%)

*Numbers may not sum due to rounding.

Forgone Benefits (Opportunity Costs)

Table 5 shows the breakdown of the forgone benefits from the professional opportunity cost to B&B HV AmeriCorps members and government in net present 2020 dollars. It lists the amount of post-tax earnings that members are forgoing—and the associated taxes forgone—to serve with the B&B HV program. This is called the total professional opportunity cost. For the *federal government benefits per federal dollar ROI* calculation, only the forgone federal income, Social Security, and Medicare taxes were subtracted from the total federal benefits that are realized due to the B&B HV program. The summation of these forgone federal taxes is called the federal professional opportunity cost.

Table 5. Forgone Benefits from Professional Opportunity Cost

Forgone Category	Professional Opportunity Cost Amount Across All Scenarios (2020\$)
Post-tax Earnings	\$296,719
Federal Income Taxes	\$49,548
State Income Taxes	\$14,844
Social Security and Medicare Taxes	\$29,913
Sales Taxes	\$5,276
Total	\$396,300

Table 6 lists the forgone benefits from the investment opportunity cost incurred by scenario and for when:

- a) Total B&B HV program funds for the program year are invested in U.S. Treasury bonds and
- b) Only federal B&B HV program funds (both program and education award funding) are invested in these bonds.

Table 6 also lists the 2019 real interest rates and the number of years elapsed (with two payments a year) that were used as inputs to calculate the forgone accrued interest value for each scenario. The analysis used 2019 real interest rates for U.S. Treasury bonds because the B&B HV program year analyzed began in 2019.

Table 6. Investment Opportunity Cost by Scenario and Funding Stream

Funding Stream	Forgone Accrued Interest by Scenario (2020\$)		
	Short term (1.30% interest rate and 1 year elapsed)	Medium term (1.45% interest rate and 15 years elapsed)	Long term (1.50% interest rate and 30 years elapsed)
Total B&B HV Program Funding	\$17,440	\$323,594	\$756,439
Federal B&B HV Program Funding Only	\$8,014	\$148,690	\$347,579

Program Costs

Table 7 shows the cost of the B&B HV program for the 2019–2020 program year by funding source. The table underscores what portion of B&B HV program funds were provided by AmeriCorps compared to other stakeholder groups (i.e., match funding). The table also highlights a further breakdown of these two funding streams, where applicable. Overall, the total cost of the B&B HV program for this program year was \$1.3 million. Forty-six percent of the B&B HV program costs (around \$615,000) was funded by the federal government. This amount includes the AmeriCorps State and National grant and the expected education awards. The remaining 54 percent (or roughly \$720,000) consisted of match funding from state and local governments.

Table 7. Program Cost by Funding Source for the B&B HV Program*

Funder	Funding Provided for the Program Year (\$)	Percent of Total (%)*
AmeriCorps	\$614,444	45.9%
Education Awards	\$182,332	13.6%
Grant	\$432,113	32.3%
State/Local Governments (i.e., Match Funding)	\$722,775	54.1%
Total	\$1,337,219	100.0%

*Numbers may not sum due to rounding.

ROI Results

Table 8 shows the program benefits, forgone benefits, and program costs that are included in each of the three ROI calculations.

Table 8. Benefits, Forgone Benefits, and Costs Included in the ROI Calculations

ROI Calculation	Program Benefits	Forgone Benefits	Costs
Total Benefits per Federal Dollar	<ul style="list-style-type: none"> All B&B HV AmeriCorps members, B&B HV program participants' children, and government benefits derived from the program 	<ul style="list-style-type: none"> Forgone benefits from professional opportunity cost Forgone benefits from Federal investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding
Total Benefits per Funder Dollar	<ul style="list-style-type: none"> All B&B HV AmeriCorps members, B&B HV program participants' children, and government benefits derived from the program 	<ul style="list-style-type: none"> Forgone benefits from professional opportunity cost Forgone benefits from total investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding All match funding
Federal Government Benefits per Federal Dollar	<ul style="list-style-type: none"> Additional federal government tax revenue generation and reduced spending attributable to the program 	<ul style="list-style-type: none"> Forgone benefits from Federal professional opportunity cost Forgone benefits from Federal investment opportunity cost 	<ul style="list-style-type: none"> AmeriCorps federal funding

This analysis developed three ROI estimates using the three scenarios (short-term, medium-term, and long-term). As noted above, the ROI calculations compare the net benefits of the B&B HV program with the program cost to calculate the ROI. Table 9. Program Benefits, Net Benefits and Program Costs by ROI Scenario shows the program gross benefits, forgone benefits, net benefits, and cost of the B&B HV program, and each of the components, that are used to calculate the three ROIs.

Table 9. Program Benefits, Net Benefits and Program Costs by ROI Scenario

Benefits and Costs	ROI Scenario (2020\$)		
	Short term	Medium term	Long term
Total Program Gross Benefits	\$1,082,349	\$2,645,166	\$3,968,500
B&B HV Children (participants)	\$-	\$24,857	\$49,714
Member Benefits	\$875,969	\$1,736,318	\$2,404,952

Return on Investment Study:
Birth & Beyond Home Visitation Program

Benefits and Costs	ROI Scenario (2020\$)		
	Short term	Medium term	Long term
Federal Government Benefits	\$146,690	\$609,767	\$1,038,050
State/Local Government/Other Funder Benefits	\$59,690	\$274,224	\$475,784
Total Forgone Benefits (Opportunity Cost)	\$413,740	\$719,894	\$1,152,739
Forgone Benefits to Members (Forgone Earnings Post Taxes)	\$296,719	\$296,719	\$296,719
Forgone Tax Revenue from Members Earnings	\$99,581	\$99,581	\$99,581
Forgone Tax Revenue Federal Government	\$79,461	\$79,461	\$79,461
Forgone Tax Revenue State/Local Government	\$20,120	\$20,120	\$20,120
Forgone Benefits from Total Investment (All Funders)	\$17,440	\$323,594	\$756,439
Forgone Benefits from Federal Government Investment	\$8,014	\$148,690	\$347,579
Forgone Benefits from State/Local Government Investment	\$9,426	\$174,904	\$408,860
Total Program Net Benefits (Total Program Gross Benefits – Total Forgone Benefits)	\$668,609	\$1,925,272	\$2,815,761
Net Benefits B&B HV Children	\$-	\$24,857	\$49,714
Net Benefits Members (Member Benefits – Forgone Benefits Members)	\$579,250	\$1,439,599	\$2,108,233
Net Benefits Federal Government (Federal Government Benefits – Forgone Tax Revenue to Federal Government – Forgone Benefits from Federal Government Investment)	\$59,215	\$381,616	\$611,010
Net Benefits State/Local Government and Other Funders (State/Local Government Benefits – Forgone Tax Revenue to State/Local Government – Forgone Benefits From State/Local Government and Other Funder Investment)	\$30,144	\$79,200	\$46,804
Program Cost	\$1,337,219	\$1,337,219	\$1,337,219
Federal Government Cost	\$614,444	\$614,444	\$614,444
Non-Federal Government Cost	\$722,775	\$722,775	\$722,775

Benefits and Costs	ROI Scenario (2020\$)		
	Short term	Medium term	Long term
ROI for Total Benefits per Federal Dollar (Total Program Net Benefits / Federal Government Cost)	\$1.10	\$3.13	\$4.58
ROI for Total Benefits per Funder Dollar (Total Program Net Benefits / Program Cost)	\$0.50	\$1.44	\$2.11
Federal Government Benefits per Federal Dollar (Net Benefits Federal Government / Federal Government Cost)	\$0.10	\$0.62	\$0.99

Table 10 summarizes the ROI results for the B&B HV program across the short-term, medium-term, and long-term scenarios. Three different ROI results are calculated for each scenario. Since two of the calculations include benefits to society (e.g., children of B&B HV program participants, B&B HV AmeriCorps members, etc.), the results are expressed as cost-benefit ratios, while maintaining the ROI terminology. Specifically, these ratios take the form of the sum of monetized benefits over the sum of applicable program costs. The ROIs expressed as cost-benefit ratios in this study can be interpreted as the amount of dollars returned for every \$1 of investment (or program cost).¹⁹ See Appendix B for the formulas used to calculate each ROI calculation.

Table 10. ROI Results for the B&B HV Program

ROI Calculation	ROI Scenario		
	Short term	Medium term	Long term
Total Benefits per Federal Dollar	\$1.10	\$3.13	\$4.58
Total Benefits per Funder Dollar	\$0.50	\$1.44	\$2.11
Federal Government Benefits per Federal Dollar	\$0.10	\$0.62	\$0.99

¹⁹ ROIs can be expressed in percentages or as ratios, such as in this study. Although not shown as a ratio in the results, the ROIs in this study show the amount of return for every \$1 invested.

The B&B HV program produces strong returns for the medium- and long-term scenarios when benefits to B&B HV AmeriCorps members, children of B&B HV program participants, and state/local governments are included. This is indicated by the results of the *total benefits per federal dollar* and the *total benefits per funder dollar* ROI calculations for these two scenarios.

In the short-term scenario—where benefits for only one-year post-program are included—ROI's range from \$0.10 for *Federal benefits per federal dollar* to \$1.10 for *total benefits per Federal dollar*. An ROI that is below \$1 in the first year post-program is common in programs where there is an initial one-time investment made and benefits accrue in the following years. This is because it often requires several years of benefits to recoup the initial investment and generate positive returns. During the program, AmeriCorps members gain the experience, skills, and knowledge that result in future benefits, such as improved employment and wages, which can be sustained throughout their working years.

In the medium-term scenario, all stakeholder groups realized a combined return of \$3.13 for every \$1 invested by the federal government in the B&B HV program. Moreover, for every \$1 invested in the B&B HV program from all funders, \$1.44 is returned to both society and government combined. For every \$1 invested by the federal government, the federal government alone receives a return of \$0.62.

For the long-term scenario, the ROI for *total benefits per federal dollar*, *total benefits per funder dollar*, and *federal government benefits per federal dollar* were \$4.58, \$2.11, and \$0.99, respectively.

The magnitude and direction of the ROI calculations are driven by several factors:

- **Reduction in the Number of Children Abused or Neglected.** According to the findings from LPC Consulting Associates, Inc. (2017), the analysis estimated there would be a 29 percent reduction in the number of children who would experience *future* abuse or neglect because of the B&B HV program. Considering 19 percent of these children had a substantiated CPS allegation prior to their mothers' participation in the B&B HV program, this results in an additional 11 children not being victims of child abuse or neglect post-program. This increase in child maltreatment prevention concurrently drives increased lifetime earnings for these children as well as reduced lifetime government costs related to healthcare, child welfare, criminal justice, and special education.
- **Medium- and long-term accumulation of benefits.** In the short-term, two of the ROI calculations result in losses because only one year of B&B HV AmeriCorps members' post-program employment and earnings gains are factored in while the entire program cost is considered. Additionally, the short-term scenario does not include any lifetime benefits in terms of additional earnings, increased tax revenue, or reduced spending on corrections/criminal justice, public assistance, special education, child welfare, or social insurance that stem from the impacts of B&B HV AmeriCorps members and the children of B&B HV program

participants. As these benefits accumulate over time, the analysis shows positive returns. This is indicated by the ROI results in the medium- and long-term scenarios (15 years, and 30 years post-program, respectively).

- **The employment outcomes of B&B HV AmeriCorps members.** According to Friedman et al. (2016), the percentage of AmeriCorps members unemployed was 5 percentage points lower six months after serving in AmeriCorps versus six months before. This gain in employment results in increased earnings and tax revenue.
- **The educational attainment outcomes of B&B HV AmeriCorps members.** AmeriCorps State and National members receive an education award after serving in an AmeriCorps program; the award is used by a portion of members to help pay for post-secondary degrees post-service. The additional educational attainment resulting from the use of the education award generates additional lifetime earnings for B&B HV AmeriCorps members and additional lifetime tax revenue and savings for government.

Government funding serves as a catalyst for private funding of evidence-based social services programs. For the ROI calculations of 1) *total benefits per federal dollar* and 2) *total benefits per funder dollar*, AmeriCorps's requirement of match funding also contributed to the magnitude of outcomes. Federal government funding of the B&B HV program serves as a catalyst for other funding, specifically that from state and local governments. This additional funding—amounting to about \$720,000 for the B&B HV program for the most recent program year—allowed the B&B HV program to serve more parents and families than otherwise would have been served under the federal funding alone. Though it may not impact the ROI, because it is a per unit metric, match funding leads to greater investment in the B&B HV program and thus to a greater impact as more individuals and families are served.

Recommendations for Further Research

Future ROI studies for national and community service programs, such as the B&B HV program, can be strengthened in several ways.

Recommendation 1: Determine the persistence of short- and long-term impacts for program participants and AmeriCorps members. The persistence of impacts, such as earnings or employment, is often not measured in evaluations because they require long-term tracking. Although a scenario-based approach that accounts for variations in the persistence of impacts can be used, as was completed in this ROI analysis, rigorous research on the long-term impact of programming will enable AmeriCorps to determine a single value for ROI calculations and avoid relying on the scenario-based approach. For example, Friedman et al. (2016) reported the unemployment status of AmeriCorps member alumni six months before, six months after, and during the summer of 2016. The authors indicate that data for the latter timepoint was collected anywhere from three to eleven years after service completion depending on the AmeriCorps member alumni cohort (i.e., 2005, 2010, or 2013). Thus, instead of collecting outcome measures at a time that varies by AmeriCorps member or program participant, studies

should track outcomes of interest at the same intervals, multiple times after program or service completion, to provide greater insight into the duration and consistency of benefits.

Recommendation 2: Document outcomes using third-party data Sources. Using third-party data, along with or in place of self-reported data, can also improve the accuracy of program outcome measurements. While self-reported data are easier to obtain—especially via the use of survey instruments—it has several disadvantages. Some answers may be exaggerated, respondents may not answer honestly, and response biases could affect results. AmeriCorps programs should—where possible—leverage data from third-party sources either to provide data for their program evaluation or to corroborate findings from self-reported data. For example, if employment and earnings outcomes are of interest, unemployment insurance (UI) data—which are submitted by employers—could be used to verify members' wages or employment status post-service. Additionally, if degree completion data are of interest, such as in the case of this ROI analysis, data from the National Student Clearinghouse (NSC) could be used to verify what portion B&B HV AmeriCorps members pursued higher education and which degrees were completed post-program, with the help of the education award. Were degree or employment outcomes data from third-party data sources (like NSC) available, those data may make more precise ROI estimates possible.

Recommendation 3: Quantify ripple effects. Earnings impacts on program participants and AmeriCorps members likely have positive benefits for those individuals' families and surrounding communities. Rigorous research on those potential ripple effects would enable AmeriCorps to capture a broader array of benefits of this and other programs, which would be expected to result in an increased ROI. Specifically, the longitudinal impacts on program participants could be collected alongside the ripple effects their outcomes have on their families and communities to determine how long these indirect impacts are sustained after program participation or completion. For instance, studying how B&B HV program participation impacts parents' employment status, educational attainment, substance or alcohol use, as well as mental and physical health would result in a more comprehensive ROI estimate.

Conclusion

Based upon these findings, investment in the B&B HV program results in favorable impacts under the medium- and long-term scenarios when society and government benefits are both included. Specifically, impacts are realized by the following stakeholder groups in this ROI analysis: B&B HV AmeriCorps members, the children of B&B HV program participants, and the various levels of government.

The ROI results indicate that the benefits realized across all stakeholder groups outweigh the investment made by the federal government for all ROI scenarios. Specifically, the combined return to society and government per federal dollar is \$1.10 under the short-term scenario, \$3.13 under the medium-term scenario and \$4.58 under the long-term scenario.

When all funding (from the federal government and other funders) is considered, every \$1 in funding results in a return of \$1.44 under the medium-term scenario and \$2.11 under the long-term scenario.

Lastly, when considering the ROI to the federal government alone, the short, medium- and long-term scenario results are \$0.10, \$0.62 and \$0.99, in return for every dollar invested, respectively.

Appendix A: Program Benefits, Forgone Benefits, and Program Costs Included in Return on Investment Calculations

In Table 11, the three columns on the right indicate by an “X” if the Program benefits, forgone benefits (opportunity cost), or program cost is included in the numerator or denominator of a return on investment (ROI) calculation.

Table 11. Program Benefits, Forgone Benefits, and Program Costs Included in ROI Calculations

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Program Benefits	Stakeholder Group	Data Sources	X indicates inclusion in the ROI numerator		
Additional lifetime earnings from increased educational attainment of the children of B&B HV program participants as a result of child maltreatment prevention	Children of B&B HV program participants	<ul style="list-style-type: none"> CAPC LPC Consulting Associates, Inc. (2017) Dakil SR, Sakai C, Lin H, Flores G. (2011) Diette et al. (2017) Trostel (2015) Consumer Price Index (CPI; U.S. Bureau of Labor Statistics, n.d.) 	X	X	—
Additional earnings of B&B HV AmeriCorps members from reduced unemployment	B&B HV AmeriCorps members	<ul style="list-style-type: none"> CAPC Friedman et al. (2016) Current Population Survey Annual Social and Economic Supplement (ASEC; U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	—

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased income tax revenue due to additional earnings of B&B HV AmeriCorps members	Federal and state governments	<ul style="list-style-type: none"> CAPC Friedman et al. (2016) ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) Tax rate data on Taxfoundation.org (2019 & 2020) 	X	X	X
Increased Social Security and Medicare tax revenue due to additional earnings of B&B HV AmeriCorps members	Federal government	<ul style="list-style-type: none"> CAPC Friedman et al. (2016) ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) Social Security Administration (SSA) (2020) 	X	X	X
Increased sales tax revenue due to additional earnings of B&B HV AmeriCorps members	State and local governments	<ul style="list-style-type: none"> CAPC Friedman et al. (2016) ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) Tax rate data on Taxfoundation.org (2020) Consumer Expenditure Survey (CEX) (U.S. Bureau of Labor Statistics, 2021) 	X	X	—

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased lifetime earnings due to increased educational attainment of B&B HV AmeriCorps members as a result of education awards	B&B HV AmeriCorps members	<ul style="list-style-type: none"> • CAPC • AmeriCorps (n.d.) • NCES (2019) • NCES (2020) • Trostel (2015) • CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	—
Increased lifetime tax revenue due to increased educational attainment of B&B HV AmeriCorps members as a result of education awards	Federal, state, and local governments	<ul style="list-style-type: none"> • CAPC • AmeriCorps (n.d.) • NCES (2019) • NCES (2020) • Trostel (2015) • CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	X
Reduced spending on lifetime public assistance, corrections, and social insurance due to increased educational attainment of B&B HV AmeriCorps members as a result of education awards	Federal, state, and local governments	<ul style="list-style-type: none"> • CAPC • AmeriCorps (n.d.) • NCES (2019) • NCES (2020) • Trostel (2015) • CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	X

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased tax revenue from living allowances and education awards	Federal, state, and local governments	<ul style="list-style-type: none"> • CAPC • Friedman et al. (2016) • AmeriCorps (n.d.) • Tax rate data on Taxfoundation.org (2019 & 2020) • SSA (2020) 	X	X	X
Post-tax living allowances and education awards	B&B HV AmeriCorps members	<ul style="list-style-type: none"> • CAPC • Friedman et al. (2016) • AmeriCorps (n.d.) • Tax rate data on Taxfoundation.org (2019 & 2020) • SSA (2020) 	X	X	—
Lifetime cost savings in healthcare, child welfare, criminal justice, and special education as a result of child maltreatment prevention	Federal, state, and local governments	<ul style="list-style-type: none"> • CAPC • LPC Consulting Associates, Inc. (2017) • Dakil SR, Sakai C, Lin H, Flores G. (2011) • Peterson et al. (2018) • Fang et al. (2012) • Hyland (2015) • Chicago Public Schools (n.d.) • Devooght et al. (2008) • CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	X

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Lifetime tax revenue from increased educational attainment by the children of B&B HV program participants as a result of child maltreatment prevention	Federal, state, and local governments	<ul style="list-style-type: none"> CAPC LPC Consulting Associates, Inc. (2017) Dakil SR, Sakai C, Lin H, Flores G. (2011) Diette et al. (2017) Trostel (2015) CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	X
Forgone Benefits (Opportunity Costs)*	Stakeholder Group	Data Sources	X indicates inclusion in the ROI numerator		
Professional opportunity cost of forgone market wages for B&B HV AmeriCorps members	B&B HV AmeriCorps members	<ul style="list-style-type: none"> CAPC ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) 	X	X	—
Professional opportunity cost of federal income, Social Security, and Medicare taxes on forgone market wages for B&B HV AmeriCorps members	Federal government	<ul style="list-style-type: none"> CAPC ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) Tax rate data on Taxfoundation.org (2019) Social Security Administration (2020) 	X	X	X

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Professional opportunity cost of state income and sales taxes on forgone market wages for B&B HV AmeriCorps members	State and local governments	<ul style="list-style-type: none"> CAPC ASEC (U.S. Census Bureau, n.d.) CPI (U.S. Bureau of Labor Statistics, n.d.) CEX (U.S. Bureau of Labor Statistics, 2021) Tax rate data on Taxfoundation.org (2020) 	X	X	—
Investment opportunity cost of investing total B&B HV program funding in U.S. Treasury bonds	All funders	<ul style="list-style-type: none"> CAPC Office of Management and Budget (OMB) (2020) U.S. Department of Treasury 	X	X	—
Investment opportunity cost of investing only federal B&B HV program funding in U.S. Treasury bonds	Federal government	<ul style="list-style-type: none"> CAPC OMB (2020) U.S. Department of Treasury 	—	—	X
Program Cost	Payer	Data Sources	X indicates inclusion in the ROI denominator		
AmeriCorps grant costs (excluding education awards provided to B&B HV AmeriCorps members)	Federal government (AmeriCorps)	<ul style="list-style-type: none"> CAPC 	X	X	X

Program Benefits, Forgone Benefits, and Program Cost			Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
B&B HV AmeriCorps member expected education awards	Federal government (AmeriCorps)	<ul style="list-style-type: none"> AmeriCorps (n.d.) CAPC Friedman et al. (2016) 	X	X	X
State and local government funding	State and local governments	<ul style="list-style-type: none"> CAPC 	—	X	—

*Forgone benefits (opportunity costs) are amounts that are reduced from total benefits realized across ROI calculations. Thus, they represent a negative value in the numerator. Please see the Calculating ROI section of Appendix B for further details.

Appendix B: Additional Information on the Methodology

This appendix provides additional details on the methodology used for this study, as a supplement to the methodology section in the main report. It describes the steps used to calculate the return on investment (ROI), the results of interim calculations that contribute to the ROI calculations, and assumptions that underlie the analysis.

Methodology Overview

Calculating the ROI for the B&B HV program included the following steps:

- Measuring and monetizing program benefits to the children of B&B HV program participants, B&B HV AmeriCorps members, and the different levels of government
- Estimating forgone benefits (opportunity costs)
- Assessing program costs
- Calculating the ROI

This ROI analysis included only those benefits that could be reasonably monetized given the available data, and that likely would not have occurred without the B&B HV program.

Although B&B HV AmeriCorps members experience positive benefits from the B&B HV program in terms of increased employment and earnings (described below), available data do not establish how long these specific impacts are sustained over time. To address a range of possible durations for those benefits, three scenarios were developed for this ROI study:

- **Short-term.** This scenario assumes short-term earnings impacts. The assumption is that earnings impacts are limited to a single year after program exit. This scenario also assumes no lifetime benefits are realized.
- **Medium-term.** This scenario assumes a longer duration of earnings impacts. The assumption is that earnings impacts last 15 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars.²⁰ This scenario also assumes only half of the net present value of lifetime benefits is realized.
- **Long-term.** This scenario assumes sustained earnings impacts throughout B&B HV AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A 3 percent discount rate is applied each year to represent net present value in 2020 dollars. This scenario also assumes the entire net present value of lifetime benefits is realized.

²⁰ The Office of Management and Budget (1992) defines a discount rate as, "The interest rate used in calculating the present value of expected yearly benefits and costs" (p. 18). Regarding the 3 percent discount rate, see Office of Management and Budget (2003).

There are some differences between the three scenarios. One is the length of time that increased employment—and earnings associated with that employment—are sustained. The other is what portion of lifetime benefits, when applicable, are realized.²¹ For each ROI calculation, three estimates using the three scenarios were developed, which is shown in greater detail in the Calculating ROI section.

Measuring Program Benefits

The first step in calculating the ROI for the B&B HV program is to measure and monetize the program benefits. The children of B&B HV program participants, B&B HV AmeriCorps members, and various levels of government benefit from the B&B HV program. These benefits were identified through an extensive literature review and data collection process. The methods used to measure benefits for each of these stakeholder groups are described below.

Benefits to the Children of B&B HV Program Participants

Results from LPC Consulting Associates, Inc. (2017) indicated that B&B HV program participants were 29 percent less likely to have subsequent substantiated CPS referrals. Dakil SR, Sakai C, Lin H, Flores G. (2011) indicated baseline recidivism for substantiated referrals to be 47%. The analysis used these outcomes to estimate the following:

- Number of additional children not abused or neglected
- Number of additional high school graduates due to child maltreatment prevention
- Additional lifetime earnings due to additional high school graduates

Number of Additional Children Not Abused or Neglected

Findings from Pollack (2016) indicate that a substantiated CPS referral signifies a confirmed case of child abuse or neglect. Given this and the outcome from LPC Consulting Associates, Inc. (2017), the B&B HV program participants' children have a lower probability of experiencing future abuse or neglect. Moreover, children who do not have substantiated CPS allegations prior to their parents' participation in the B&B HV program (i.e., are not abused or neglected pre-program) have a decreased probability of ever becoming a victim of abuse or neglect.

²¹ These three scenarios consider varying durations of how long increased employment and earnings benefits last for B&B HV AmeriCorps members. They also consider varying durations for lifetime benefits that stem from the B&B HV program. For example, lifetime benefits in terms of decreased public assistance, social insurance, and corrections costs result from B&B HV AmeriCorps members' higher educational attainment post-service. The analysis estimates lifetime benefits differently in the three scenarios. Specifically, the net present value of the entire lifetime benefit is realized for the long-term scenario, half of the net present value of the lifetime benefit is realized for the medium-term scenario, and no lifetime benefit amount is realized for the short-term scenario.

To estimate the additional number of children not abused or neglected due to the B&B HV program, the analysis first determined the number of parents who participated in the B&B HV program during the most recent program year, had prior CPS involvement within six months of the program's start date, and had children aged 0 to 5. These same criteria aligned with those used to determine the study sample in LPC Consulting Associates, Inc. (2017). CAPC did not have these data available. However, they provided the number of children aged 0 to 5 whose parent participated in the B&B HV program during the 2019–2020 program year and had prior CPS involvement within six months of the program's start date (i.e., 68 children). Given this, the analysis assumed that each B&B HV program participant would have 1.49 children. This was informed by data from Applied Survey Research (2019) in which during fiscal year 2018–2019, 1,515 parents participated in the B&B HV program and they had 2,258 children in total. Dividing the number of children provided by CAPC by 1.49 estimated the number of parents who had CPS involvement within six months from the start of the B&B HV program, had children aged 0 to 5, and participated in the B&B HV program during the most recent program year (i.e., 46). Thus, the analysis estimated there were 46 parents who had children aged 0 to 5, who had prior CPS involvement, and participated in the B&B HV program during the most recent program year. These assumptions were used to align with the parent B&B HV program participant CPS recidivism outcome from LPC Consulting Associates, Inc. (2017) compared to the baseline from Dakil SR, Sakai C, Lin H, Flores G. (2011).

The analysis then multiplied the estimated number of parents participating in the B&B HV program by 29 percent—the CPS recidivism outcome from LPC Consulting Associates, Inc. (2017) and then incorporated the baseline recidivism rate of 47% (from Dakil SR, Sakai C, Lin H, Flores G. (2011)—to estimate the additional number of parents who would not be perpetrators of future child abuse or neglect due to participating in the B&B HV program. Assuming parents had 1.49 children, this in turn conservatively estimated that 7.5 additional children would not experience future abuse or neglect due to their mothers' participation in the B&B HV program. ICF also received CAPC data that indicated 13 of the 68 children (i.e., 19.1 percent) had a substantiated CPS allegation prior to the start of the B&B HV program. Namely, 19.1 percent of the children were confirmed to be victims of child abuse or neglect pre-program. The analysis removed this portion of the child population to estimate the number of children who will not be victims of child abuse or neglect due to their mothers' participation in the B&B HV program (i.e., 11). This was done to align with the subsequent data sources used to monetize benefits related to preventing child maltreatment. These calculations and results are presented in Table 12.

Table 12. Number of Additional Children Not Abused or Neglected Due to their Mothers' Participation in the B&B HV Program

Row	Component	Value*
A	Children	68
B	Parents (68/1.49)	45.64
C	Anticipated recidivists w/o B&B (45.64*.47)	21.45
D	Prevented from being recidivists (21.45*.29)	6.22
E	Kids of prevented recidivists (6.22*1.49)	9.27
F	Those never abused (due to B&B HV program) = 9.27*80.9	7.50

Sources: CAPC, Applied Survey Research (2019), LPC Consulting Associates, Inc. (2017), and Dakil SR, Sakai C, Lin H, Flores G. (2011)

Number of Additional High School Graduates due to Child Maltreatment Prevention

According to Diette et al. (2017), males and females who were victims of home violence as youth had higher high school dropout rates compared to their peers who were never victims to home violence. Home violence was defined by the authors as either being badly beaten by parents or other caregivers, or witnessing serious fights at home. According to Child Welfare Information Gateway (2019), both definitionally constitute child abuse or neglect. The male and female high school dropout rate differentials for those who experienced child abuse or neglect during their youth according to Diette et al. (2017) were 4.6 and 6.8 percent, respectively. Given the analysis estimated the number of additional children not abused or neglected due to their parents' participation in the B&B HV program, these high school dropout rate differentials in turn represent high school graduate rate differentials. Thus, for boys and girls whose mothers participated in the B&B HV program and were estimated not to be perpetrators of child abuse or neglect, their high school graduation rates were 4.6 and 6.8 percentage points higher, respectively.

To use these findings, the analysis first leveraged the gender distribution of the children aged 0 to 5 whose parent participated in the B&B HV program during the 2019–2020 program year and prior CPS involvement within six months of the program's start date as provided by CAPC. Their data indicated 60 percent and 40 percent of those children were boys and girls, respectively. The analysis then applied these percentages to the number of additional children not abused or neglected due to the B&B HV program (i.e., 7.5). Then the analysis applied the high school graduation rate differentials from Diette et al. (2017) to calculate the number of additional high school graduates—by gender—due to the B&B HV program. These calculations are shown in Table 13.

Table 13. Number of Additional High School Graduates due to Child Maltreatment Prevention*

Gender	Additional Total Children Not Abused or Neglected Due to the B&B HV Program	Gender Distribution (%)	Additional Children Not Abused or Neglected Due to the B&B HV Program	High School Graduation Rate Differentials (%)	Additional High School Graduates
Boys	7.5	60.0%	4.5	4.6%	0.21
Girls	7.5	40.0%	3.0	6.8%	0.20
Total		100.0%	7.5		0.41

Sources: CAPC, Applied Survey Research (2019), LPC Consulting Associates, Inc. (2017), Dakil SR, Sakai C, Lin H, Flores G. (2011), and Diette et al. (2017)

*Numbers may not total due to rounding.

Additional Lifetime Earnings Due to Additional High School Graduates

The additional 0.41 children graduating high school experience an increase in their earnings potential. Trostel (2015) calculated the difference in additional lifetime pre-tax earnings and lifetime taxes paid from one level of education to the next. Specifically, Trostel (2015) included these metrics for someone with less than a high school education and for someone who graduated high school. Table 14 lists the *additional* lifetime pre-tax earnings and taxes paid for someone that graduated high school compared to someone without a high school diploma in the second and third columns, respectively, in 2020 dollars. To calculate the direct benefit to the children of B&B HV program participants, the analysis subtracted the lifetime taxes paid from the pre-tax lifetime earnings to estimate the additional post-tax lifetime earnings per high school graduate (shown in the fourth column of Table 14). The analysis then multiplied this value by the 0.41 additional high school graduates calculated earlier to estimate the total lifetime additional earnings realized by these children that are attributable to their mothers' participation in the B&B HV program. This totals to roughly \$49,714 in additional lifetime earnings as shown in Table 14.

Table 14. Additional Lifetime Earnings Due to Additional High School Graduates*

Additional High School Graduates	Additional Pre tax Lifetime Earnings Per High School Graduate (2020\$)	Additional Lifetime Taxes Paid Per High School Graduate (2020\$)	Additional Post tax Lifetime Earnings Per High School Graduate (2020\$)	Total Post tax Lifetime Earnings Due to the B&B HV Program (2020\$)
0.41	\$225,510	\$104,256	\$121,254	\$49,714

Sources: CAPC, LPC Consulting Associates, Inc. (2017), Dakil SR, Sakai C, Lin H, Flores G. (2011), Diette et al. (2017), CPI, and Trostel (2015)

*Numbers may not total due to rounding.

Benefits to B&B HV AmeriCorps Members

The B&B HV AmeriCorps members who provide services as part of the B&B HV program experience benefits due to their national service. This analysis estimated the following benefits:

- Living allowance and education award
- Increased earnings due to reduced unemployment
- Increased lifetime earnings due to increased post-secondary education derived from the use of education awards

Living Allowance and Education Award

Living allowances are given to AmeriCorps members during their one-year service term to pay for various living expenses—such as housing and groceries—and it sometimes includes members' worker's compensation and health insurance when applicable. Regarding education awards, according to Friedman et al. (2016), a significant portion (i.e., 46 percent) of AmeriCorps State and National member alumni use them to pay for additional post-secondary education at colleges, graduate schools, and technical/vocational schools, while others (i.e., 33 percent) use them to pay off outstanding student loans. The remaining 21 percent do not use their education awards.

Both the living allowances and education awards (considered one-time benefits that are not discounted or spread over time) are taxable and represent member benefits. However, only the portion of education awards used by members to pay off existing student loans is considered a direct member benefit. The portion that is utilized to pursue further post-secondary education is only used in calculating members' additional lifetime earnings due to the increased educational attainment they experience post-service from using the education award. This is done to avoid double counting. This analysis included the post-tax values of the living allowance and the portion of the education award used to repay student loans as B&B HV AmeriCorps member benefits which are listed in Table 15. The portion of the education award used to fund additional post-secondary education is discussed in the following section.

Table 15. B&B HV AmeriCorps Member Benefits from the Living Allowance and Education Award

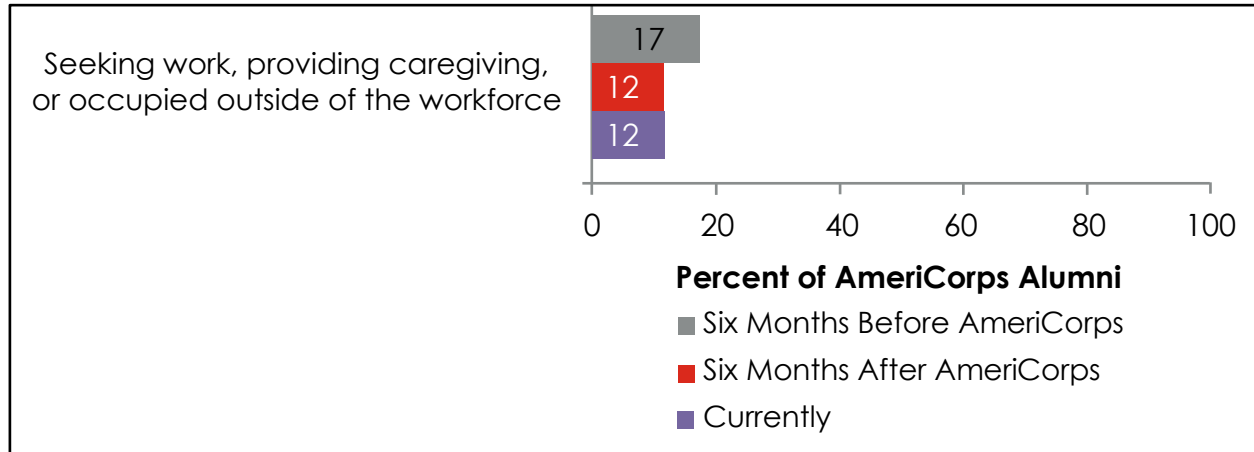
Benefit	Post tax Value (2020\$)	Notes
Living Allowance	\$758,288	Post-tax living allowances members receive during service
Education Award Used to Pay Off Student Loans	\$62,645	Post-tax education award amount used to pay off outstanding student loans
Total	\$820,933	

Sources: CAPC and Friedman et al. (2016)

Increased Earnings due to Reduced Unemployment

According to Friedman et al. (2016), the percentage of AmeriCorps members unemployed was 5 percentage points lower six months after serving in AmeriCorps compared to six months before. The study did not provide actual employment rates for AmeriCorps members pre- and post-service, but instead provided the unemployment rates shown in Figure 2 (17 percent vs. 12 percent) in which the change between them represents a 5-percentage-point decrease.

Figure 2. Unemployment Status Results from Friedman et al. (2016)²²



Source: Friedman et al. (2016)

A direct member benefit from being employed post-service is additional income earned. To monetize this five percentage-point decrease in unemployment, ICF requested that CAPC provide the gender, age, pre-service educational attainment, and race/ethnicity distribution of AmeriCorps members who served with the B&B HV program for the most recent program year. Based on those demographics, the analysis used annual average earnings data from the Current Population Survey's Annual Social and Economic (ASEC) Supplement for March 2019 to estimate B&B HV AmeriCorps members' additional earnings due to the reduced unemployment.

Specifically, the analysis used ASEC data to calculate the per-person pre-tax average annual earnings for 18 to 34-year-olds weighted by the demographic distribution of B&B HV AmeriCorps members that served during the 2019-2020 program year. This value expressed in 2020 dollars was \$35,687 as shown in Table 16. The analysis then multiplied the 5-percentage-point decrease in unemployment from Friedman et al. (2016) by the number of B&B HV AmeriCorps member full-time equivalents (FTEs) that served during the most recent program year (i.e., 37.5). This estimated the number of *additional* B&B HV AmeriCorps member FTEs employed due to national service (i.e., 2). To estimate the additional pre-tax earnings that stemmed from the reduced unemployment, the \$35,687 annual earnings amount was multiplied by the additional number of B&B HV

²² "Currently" refers to the summer 2016 survey. Respondents were from the 2005, 2010, and 2013 AmeriCorps cohorts, so respondents varied in how much time had elapsed since their AmeriCorps service.

AmeriCorps members employed post-service. This represents the additional income earned by B&B HV AmeriCorps members due to serving with the B&B HV program.

Table 16. Additional Pre-tax Earnings for B&B HV AmeriCorps Members from Reduced Unemployment Based on B&B HV AmeriCorps Member Demographics

Metric	Value (2020\$)*
Average Per-person Pre-tax Annual Earnings of Employed 18 to 34-year-olds Weighted by B&B HV AmeriCorps Member Demographics (e.g., gender, race/ethnicity, and pre-service education level)	\$35,687
Reduction in AmeriCorps Members' Unemployment	5%
B&B HV AmeriCorps Member FTEs	37.5
Cumulative Additional Pre-tax Earnings	\$66,912
Cumulative Additional Post-tax Earnings	\$55,036

Sources: CAPC, Friedman et al. (2016), CPI, and ASEC (2019)

*Numbers may not total due to rounding.

To avoid double counting, the additional *post-tax* earnings is used to calculate the direct benefit to B&B HV AmeriCorps members, rather than the additional *pre-tax* earnings. The post-tax annual earnings for the additional 2 B&B HV AmeriCorps member FTEs employed in Table 16 excludes payroll taxes (e.g., federal and state income, Social Security, and Medicare). The payroll tax rates used are described in more detail in the Benefits to Government section.

Based on these calculations, the cumulative additional post-tax earnings for B&B HV AmeriCorps members for the three different scenarios—discounted in 2020 dollars using data from Office of Management and Budget (2003)—are shown in Table 17. These monetary amounts represent the additional post-tax earnings realized due to the employment gain that is solely attributed to the B&B HV program.

Table 17. Cumulative Additional Post-tax Earnings Derived from Reduced Unemployment due to Serving with the B&B HV Program by Scenario

Scenario	Cumulative Additional Post tax Earnings due to Serving with the B&B HV Program (2020\$)
Short-term	\$55,036
Medium-term	\$672,810
Long-term	\$1,098,868

Sources: CAPC, Friedman et al. (2016), ASEC (2019), and OMB (2003)

Increased Lifetime Earnings due to Increased Post-secondary Education Derived from the Use of Education Awards

The AmeriCorps education award pays for some portion of members' increased post-secondary educational attainment, and the future earnings derived from that educational attainment is treated as a direct benefit to B&B HV AmeriCorps members. To calculate the portion of members' increased educational attainment that is attributable to the B&B HV program, this analysis used cost data from the National Center for Education Statistics (NCES). Table 18 details the average total cost for each degree type, and the portion of the cost that the post-tax education award amount (i.e., \$5,234) represents (\$6,155²³ before taxes). The analysis used these percentages to estimate the lifetime benefits of post-secondary educational attainment that can be attributed to the education award. For instance, according to NCES (2020), the average annual cost of a public, in-state, four-year academic institution during the 2019 to 2020 academic year was \$20,532. This amounts to almost \$83,000 for four years if expressed in 2020 dollars. The \$5,234 post-tax education award only represents 6.3 percent of the cost of that degree, so the B&B HV program could only be credited with 6.3 percent of the completion of B&B HV AmeriCorps members' bachelor's degree post-service.

For additional earnings derived from B&B HV AmeriCorps members' reduced unemployment, they were calculated annually and then discounted based on the short-term, medium-term, and long-term scenarios in net present 2020 dollars.

For additional earnings derived from B&B HV AmeriCorps members' increased post-secondary educational attainment—due to using education awards—Trostel (2015) did not provide data on how earnings accrue over time. Therefore, this analysis treated the increases in earnings as lifetime values expressed in 2020 dollars. The analysis assumed 100 percent of those lifetime earnings accrued by year 30 (i.e., in the long-term scenario), 50 percent accrued by year 15 (i.e., in the medium-term scenario), and nothing accrued one year post-program (i.e., in the short-term scenario).

²³ This analysis used the 2020 to 2021 AmeriCorps education award amount (\$6,345) but discounts it to net present 2020 dollars using the Consumer Price Index. For more information about this education award, please see <https://americorps.gov/members-volunteers/segal-americorps-education-award/find-out-more>.

Table 18. Average Total Cost of Education and Portion Attributable to Education Award by Degree Type

Degree Type ²⁴	Average Cost (2020\$)*	Percent of Degree Total Cost Covered by Post tax Education Award (%)
Associate Degree	\$11,979	43.7%
Bachelor's Degree	\$82,949	6.3%
Graduate Degree	\$39,401	13.3%

Sources: AmeriCorps (n.d.), CPI, NCES (2019), and NCES (2020)

*Costs were provided for the 2019 to 2020 academic year by NCES (2020) for associate degree and bachelor's degree types. Graduate degree type data for the 2018 to 2019 academic year was provided by NCES (2019). These costs are expressed in 2020 dollars since the post-tax education award amounts are in 2020 dollars.

To determine the future lifetime earnings (and later, the associated lifetime taxes, which are described in the Benefits to Government section) realized due to the use of the education award post-service, the analysis first determined the number of additional post-secondary degrees estimated to be completed by degree type. The 37.5 B&B HV AmeriCorps member FTEs who served during the 2019–2020 program year were distributed by the education award use findings listed in Friedman et al. (2016) across the degree types. Specifically, Friedman et al. (2016) reported 46 percent of AmeriCorps State and National member alumni used their education award to pursue post-secondary degrees after program completion. This makes the number of B&B HV AmeriCorps member FTEs expected to use the education award to pursue additional post-secondary education roughly equal to 17. Specifically, Friedman et al. (2016) indicated that the 46 percent is comprised of 2 percent using the education award to attend a technical or vocational training program, 21 percent using it to obtain a bachelor's degree, and 23 percent using it for graduate school.²⁵ This results in the number of B&B HV AmeriCorps members estimated to pursue an associate degree, a bachelor's degree, and a graduate degree post-service to be roughly 1, 8, and 9, respectively, due to using the education award. These values are shown in Table 19.

²⁴ Costs for an associate degree include tuition, required fees, books, and supplies for a public, in-state, 2-year program; costs for a bachelor's degree include tuition, required fees, books, supplies, and on-campus housing for a public, in-state, 4-year program; costs for a graduate degree includes tuition and required fees for a public, in-state, 2-year graduate program.

²⁵ This analysis considers the use of the education award to attend a technical or vocational training program from Friedman et al. (2016) to be synonymous with using it to pursue an associate degree.

Table 19. Estimates of the Number of Post-secondary Degrees Pursued Using the Education Award by Degree Type

Degree Type	Total B&B HV AmeriCorps Member FTE Count	Percent Estimated to Pursue Post secondary Education According to Friedman et al. (2016) (%)	Number of Degrees Pursued Using the Education Award*
Associate Degree	37.5	2%	0.8
Bachelor's Degree	37.5	21%	7.9
Graduate Degree	37.5	23%	8.6
All Degrees	—	46%	17.3

Sources: AmeriCorps (n.d.), CPI, CAPC, Friedman et al. (2016), NCES (2020), and NCES (2019)

*Numbers may not total due to rounding.

Next, the difference in the additional lifetime pre-tax earnings from one degree type to the subsequent degree type was estimated using data provided by Trostel (2015), which is shown in the fifth column of Table 20 and expressed in 2020 dollars.²⁶ For instance, using Trostel (2015) data, the lifetime earnings in 2020 dollars of someone with an associate degree is about \$875,000, while that of someone with a bachelor's degree is almost \$1.3 million. The difference between these two metrics (roughly \$417,000 as show in Table 20) represents the additional lifetime earnings realized as a result of gaining a bachelor's degree if an associate degree was already completed. This process was completed for all post-secondary degree types to conservatively estimate the additional lifetime earnings realized by B&B HV AmeriCorps members due to an increase in post-secondary educational attainment. Trostel (2015) also included data on lifetime taxes paid which was converted to 2020 dollars and then used to estimate the post-tax lifetime earnings that would be realized per additional post-secondary degree received. Specifically, the lifetime taxes paid amounts were subtracted from the pre-tax additional lifetime earnings amounts to estimate the additional post-tax lifetime earnings, a direct benefit to B&B HV AmeriCorps members.

²⁶ For an associate degree, comparisons were made between metrics for a high school diploma and those for an associate degree. For a bachelor's degree, comparisons made were between metrics for an associate degree and those of a bachelor's degree. For a graduate degree, comparisons made were between metrics for a bachelor's degree and those of a master's degree.

Table 20. Additional Earnings from AmeriCorps Members' Use of the Education Award*

Degree Type	Number of Degrees Pursued Using the Education Award	Percent of Degree Total Cost Covered by Post tax Education Award (%)	Number of Degrees Obtained With Using the Education Award	Additional Pre tax Lifetime Earnings per Degree Type (2020\$)	Additional Lifetime Taxes Paid per Degree Type (2020\$)	Additional Post tax Lifetime Earnings per Degree Type (2020\$)	Total Post tax Lifetime Earnings Using the Education Award
Associate Degree	0.8	43.7%	0.3	\$271,036	\$120,490	\$150,546	\$49,336
Bachelor's Degree	7.9	6.3%	0.5	\$416,996	\$201,594	\$215,402	\$107,036
Graduate Degree	8.6	13.3%	1.1	\$461,413	\$174,460	\$286,953	\$328,778
Total	17.3		2.0				\$485,151

Sources: AmeriCorps (n.d.), CPI, CAPC, Friedman et al. (2016), NCES (2020), NCES (2019), and Trostel (2015)
*Numbers may not sum due to rounding.

To isolate the increase in additional lifetime earnings specific to members using the education award, the number of B&B HV AmeriCorps members who used the education award for this purpose by degree type was reduced by the percent of the degree cost that can be covered by the \$5,234 post-tax education award received post-service, displayed in the third column of Table 20. As a result, the analysis estimated that the use of the education award among B&B HV AmeriCorps members produced roughly 1 additional associate degree, 1 additional bachelor's degree, and 1 additional graduate degree post-service. Then, the number of additional degrees obtained was applied to the 2020 additional post-tax lifetime earnings by degree type. This calculates the additional lifetime post-tax earnings realized by B&B HV AmeriCorps members from their increase in post-secondary educational attainment that is credited to the use of the education award post-service. The total additional lifetime post-tax earnings amount was roughly \$485,000 across B&B HV AmeriCorps members. Of note, these lifetime earnings are *in addition to* the earnings derived from B&B HV AmeriCorps members' gains in employment as delineated in the previous section. To reiterate, the earnings from B&B HV AmeriCorps members' reduced unemployment differs depending on the scenario (i.e., short-term, medium-term, and long-term) since it is uncertain how long these earnings will persist. For the post-tax lifetime earnings—and all lifetime benefits in this ROI analysis—the entire amount is realized in the long-term, half of it is realized in the medium-term, and no amount is realized in the short-term.

Benefits to Government

State and Local Government

State and local government benefits from:

- Additional state income tax revenue from B&B HV AmeriCorps members' increased earnings due to reduced unemployment
- Additional lifetime state and local taxes due to B&B HV AmeriCorps members' increased post-secondary educational attainment²⁷
- Additional lifetime state and local taxes due to B&B HV program participants' children's increased secondary educational attainment²⁸
- Additional state and local taxes from the living allowance and education award received by these members
- Additional state and local sales tax revenue from B&B HV AmeriCorps members' increased consumption due to reduced unemployment
- Reduced lifetime spending on social insurance and corrections²⁹ due to B&B HV AmeriCorps members' increased post-secondary educational attainment
- Reduced lifetime spending on long-term healthcare, child welfare, criminal justice, and special education due to child maltreatment prevention

²⁷ This benefit was calculated using lifetime tax revenue data from Trostel (2015). These values summed lifetime state income taxes, lifetime property taxes, and lifetime sales taxes by education level.

²⁸ Ibid.

²⁹ Reduced spending on public assistance due to B&B HV AmeriCorps members' increased post-secondary educational attainment is included as a federal government benefit, not a state and local government benefit. This is because public assistance includes programs funded at the federal-level (e.g., TANF, etc.).

State income tax revenue: To measure income tax revenue generation that stems from reduced unemployment for state governments (any local income taxes are not included), the additional pre-tax earnings of B&B HV AmeriCorps members that are solely attributed to the B&B HV program are taxed by a weighted, estimated proportional state income tax rate. This tax rate considers state-specific progressive tax brackets and standard deduction amounts. Based on the taxable income, the analysis estimated the proportional state income tax for each state as the amount of state income taxes paid per B&B HV AmeriCorps member divided by their pre-tax earnings. This analysis then calculated the weighted average of these state-specific tax rates—using these states' population from the 5-year estimates of the 2019 American Community Survey—to estimate a weighted national tax rate (i.e., 2.8 percent). A weighted national tax rate was used because B&B HV AmeriCorps members may disperse to various locations nationwide following their service terms and continue to migrate over the course of their working years.

For additional tax revenue derived from B&B HV AmeriCorps members' reduced unemployment, living allowances, and education awards, they were calculated using tax rates specific to each per-person monetary amount.

For additional tax revenue derived from B&B HV AmeriCorps members' increased post-secondary educational attainment—due to using education awards—as well as from B&B HV program participants' children's increased secondary educational attainment, Trostel (2015) did not provide specific tax rates. Therefore, this analysis treated the increases in tax revenue as lifetime values expressed in 2020 dollars. The analysis assumed 100 percent of those lifetime tax revenues accrued by year 30 (i.e., in the long-term scenario), 50 percent accrued by year 15 (i.e., in the medium-term scenario), and nothing accrued one year post-program (i.e., in the short-term scenario).

Lifetime state income tax revenue values are also provided by Trostel (2015) by education level. Based on 1) the number of post-secondary degrees estimated to be obtained due to the use of the education award received after serving with the B&B HV program and 2) the number of additional high school diplomas obtained by children whose mothers participated in the B&B HV program, additional lifetime state income taxes are realized. Thus, the additional lifetime state income taxes paid values—informed by data from Trostel (2015)—were first converted to 2020 dollars. The analysis then multiplied them by 1) the inferred number of degrees obtained with using the education award (which are listed in the fourth column of Table 20) and 2) the number of additional high school diplomas obtained due to child maltreatment prevention (which are listed in the sixth column of Table 13), separately.

State governments also receive state income taxes from the education awards B&B HV AmeriCorps members receive post-service. The analysis estimated the pre-tax education award amount in 2020 dollars (i.e., \$6,155).³⁰ Then the analysis multiplied it by the number of B&B HV AmeriCorps member FTEs expected to redeem the award and use it to pursue post-secondary education or to repay outstanding student loans based on findings from Friedman et al. (2016). The result represents the pre-tax cumulative education award amount expected to be received by B&B HV AmeriCorps members. The portion of this value taxed by state income taxes was estimated using a weighted state income tax rate specific to the per-person education award amount. Additionally, state income taxes were estimated for the living allowance amount received by B&B HV AmeriCorps members during their service term using tax rates specific to the per-person value. The different rates used for these member benefits are enumerated in Table 24.

State and local sales tax revenue: To measure sales tax revenue generation for state and local governments that stems from reduced unemployment, a weighted state and local sales tax rate was applied to the amount of B&B HV AmeriCorps members' cumulative additional *post-tax* earnings that are available to be spent on taxable goods. To establish a weighted state and local sales tax, this analysis first summed the state sales tax rate and the average local sales tax rate for each state using data from Cammenga (2020). Then using 2019 data from the American Community Survey (U.S. Census Bureau, n.d.), these state-level combined state and local sales tax rates were weighted based on the population of each state. The resulting weighted average sales tax rate used in this analysis was 7.43 percent.

To estimate the additional post-tax earnings as a result of reduced unemployment that was spent on taxable goods, data from the Consumer Expenditure Survey (U.S. Bureau of Labor Statistics, 2021) were used. These data show the amount of spending on a number of different goods and services by national consumers across several different pre-tax income brackets.³¹ The proportion of earnings that is spent on taxable goods (such as alcoholic beverages, housekeeping supplies, apparel, etc.) was then calculated for consumers with incomes that matched the per-person average pre-tax earnings of B&B HV AmeriCorps members. This value was 44.9 percent. This proportion was then applied to B&B HV AmeriCorps members' cumulative additional *post-tax* earnings to calculate the post-tax monetary amount they spend on taxable goods. Then the sales tax rate (i.e., 7.43 percent) was applied to estimate the resulting sales tax

³⁰ This analysis used the 2020 to 2021 AmeriCorps education award amount (\$6,345) but discounts it to net present 2020 dollars using the Consumer Price Index. For more information about this education award, please see <https://americorps.gov/members-volunteers/segal-americorps-education-award/find-out-more>.

³¹ To calculate the estimated taxable expenditures, Consumer Expenditure Survey (CEX) Table 1203 was used from U.S. Bureau of Labor Statistics (2021). This table lists the annual expenditure means by pre-tax income tax brackets. Thus, the pre-tax earnings of B&B HV AmeriCorps members were used instead of their post-tax earnings to calculate this metric. Please visit this site for more details: <https://www.bls.gov/cex/tables/calendar-year/mean-item-share-average-standard-error.htm#cu-income>.

revenues that go to state and local governments due to B&B HV AmeriCorps members' reduced unemployment post-service.

Trostel (2015) also provides additional lifetime state and local sales tax values by education level. Using these values, the analysis calculated the additional sales tax revenue realized by state and local governments 1) as a result of B&B HV AmeriCorps members using their education award to achieve higher post-secondary educational attainment post-service and 2) as a result of the children of B&B HV program participants completing their secondary education due to child maltreatment prevention. These values represent a direct benefit to state and local governments in the form of increased tax revenue.

State and local government cost savings: State and local governments also benefit from the B&B HV program through lifetime savings in social insurance and corrections—as reported in Trostel (2015)—due to the increase in B&B HV AmeriCorps members' post-secondary educational attainment after program exit. Of note, social insurance includes unemployment insurance and workers' compensation. To calculate these lifetime non-federal government savings, the analysis first calculated the decrease in social insurance and corrections costs (and thus savings) from one education level to the subsequent education level using data from Trostel (2015) and then multiplied these monetary amounts by the number of additional post-secondary degrees estimated to be obtained due to the use of the education awards.

To determine what portion of this differential represents lifetime cost savings to state or local governments versus the federal government, a different method was employed for each of these cost savings areas. For social insurance, 50 percent of lifetime unemployment insurance cost savings and all the lifetime cost savings for workers' compensation are apportioned to state and local governments (Oswald, 2018). Regarding reductions in lifetime corrections spending, the portion between the federal and state or local governments was determined based on data from Hyland (2015). Specifically, this report found that 8.4 percent of U.S. correction costs is paid by the federal government and the remaining 91.6 percent is paid by state and local governments. Therefore, almost 92 percent of the lifetime cost savings in corrections due to B&B HV AmeriCorps members experiencing an increase in post-secondary educational attainment post-service are allocated to state and local governments.

State and local governments also realize benefits in the form of lifetime cost savings due to child maltreatment prevention that stems from the B&B HV program. Peterson et al. (2018) estimated the lifetime costs borne by the various levels of government due to nonfatal child maltreatment. The study authors calculated the lifetime economic cost per victim of child abuse, augmenting the results previously published in Fang et al. (2012), and segmented estimates across the following cost categories: short-term healthcare, long-term healthcare, child welfare, criminal justice, and special education. These lifetime cost values are presented in Table 21 in 2020 dollars.

Table 21. Per-Victim Lifetime Cost and Economic Burden of Nonfatal Child Maltreatment Estimates

Cost Category	Lifetime Cost Estimate per Victim of Child Abuse (2020\$)
Short-term healthcare	\$37,975
Long-term healthcare	\$12,248
Child welfare	\$9,071
Criminal justice	\$7,920
Special education	\$9,388

Sources: Peterson et al. (2018) and CPI

Short-term healthcare costs represent incremental medical costs attributable to child maltreatment during childhood. Long-term healthcare costs represent physical and mental health costs incurred during adulthood due to experiencing child abuse earlier on. According to Peterson et al. (2018), the short-term healthcare costs are measured using Medicaid claims data while the long-term healthcare costs are estimated using medical cost data from study participants enrolled in a non-federal healthcare plan. Child welfare costs were estimated using data from the Administration of Children and Families and include costs related to child welfare activities such as case management and investigating allegations of child abuse through CPS. Criminal justice costs represent administrative and processing expenditures related to juvenile and adult arrests for individuals who had substantiated cases of child maltreatment. Special education costs include those related to providing special education services for maltreated children beyond regular classroom instruction. For more detail regarding the definitions, data sources, and comprehensive methods used to calculate these estimates in Table 21, reference Fang et al. (2012) and Peterson et al. (2018).

To estimate government cost savings, this analysis multiplied the lifetime costs by the number of additional children who were not abused or neglected because of their parents' participation in the B&B HV program. The analysis first used third-party sources to determine which portion of the per-victim lifetime costs listed in Table 21 were realized by the federal government versus state and local governments. This segmentation is presented in the first column of Table 22. The segmentation was determined based on the specific studies and data sources Peterson et al. (2018) and Fang et al. (2012) used to estimate these per-victim lifetime costs. Since short-term healthcare costs are estimated using Medicaid claims data, all associated cost savings are apportioned only to the federal government. Given that long-term healthcare costs are estimated using findings from Bonomi et al. (2008), whose study participants were enrolled in a non-federal healthcare plan, associated cost savings are apportioned only to state and local governments. The segmentation for cost savings related to child welfare, criminal justice, and special education were determined by exploring the data and methodologies presented and used in DeVooght et al. (2008), Hyland (2015), and Chicago Public Schools. (n.d.), respectively. Specifically, DeVooght et al. (2008) provided the segmentation of child welfare funds by level of government, Hyland (2015) provided the segmentation of direct expenditures for the criminal justice system

by level of government, and Chicago Public Schools (n.d.), provided the segmentation of general operating funds for Chicago Public Schools for fiscal year 2020 by funding source. The latter was used because Fang et al. (2012) used data from Chicago Public Schools to calculate per-child special education costs. Thus, based on the results in Table 22, due to child maltreatment prevention derived from the B&B HV program, state and local governments realize almost \$340,000 in total lifetime cost savings.

Table 22. Lifetime Cost Savings Due to Child Maltreatment Prevention*

Cost Savings Category (Percent Distribution)	Lifetime Cost Estimate per Victim of Child Abuse (2020\$)	Additional Children Not Abused or Neglected Due to the B&B HV Program	Total Lifetime Cost Savings
Short-term Healthcare	\$37,975		\$284,813
Federal Government (100%)	\$37,975	7.5	\$284,813
State and Local Governments (0%)	\$-	7.5	\$-
Long-term Healthcare	\$12,248		\$91,860
Federal Government (0%)	\$-	7.5	\$-
State and Local Governments (100%)	\$12,248	7.5	\$91,860
Child Welfare	\$9,071		\$68,033
Federal Government (48%)	\$4,377	7.5	\$32,828
State and Local Governments (52%)	\$4,694	7.5	\$35,205
Criminal Justice	\$7,920		\$59,400
Federal Government (18%)	\$1,402	7.5	\$10,515
State and Local Governments (82%)	\$6,518	7.5	\$48,885
Special Education	\$9,388		\$70,418
Federal Government (12%)	\$1,089	7.5	\$8,168
State and Local Governments (88%)	\$8,300	7.5	\$62,250
Total			\$574,524

Sources: Peterson et al. (2018), Fang et al. (2012), CPI, CPAC, LPC Consulting Associates, Inc. (2017), DeVooght et al. (2008), Hyland (2015), and Chicago Public Schools. (n.d.)

*Numbers may not sum due to rounding.

Federal Government

The federal government benefits from:

- Additional federal income, Social Security, and Medicare tax revenue from B&B HV AmeriCorps members' increased earnings due to reduced unemployment
- Additional federal income, Social Security, and Medicare taxes from the living allowance and education award received by these members

- Additional lifetime federal taxes due to B&B HV AmeriCorps members' increased post-secondary educational attainment
- Additional lifetime federal taxes due to B&B HV program participants' children's increased secondary educational attainment
- Reduced lifetime spending on public assistance, social insurance, and corrections due to B&B HV AmeriCorps members' increased post-secondary educational attainment
- Reduced lifetime spending on short-term healthcare, child welfare, criminal justice, and special education due to child maltreatment prevention

Federal income tax revenue: To measure federal income tax revenue that stems from reduced unemployment, the additional pre-tax earnings of B&B HV AmeriCorps members that are solely attributed to the B&B HV program—as well as the pre-tax living allowance and education award amounts received by B&B HV AmeriCorps members—are taxed by a federal income tax rate. The rates used are estimated proportional tax rates that consider the standard deductions and progressive tax brackets specific to federal income taxes as provided by El-Sibaie (2019). To reiterate, an estimated proportional tax rate equals the total amount of taxes estimated to be paid divided by the pre-tax amount of the value to be taxed (e.g., per-person average pre-tax earnings). The specific federal income tax rates used for these different benefits are enumerated in Table 24. Of note, different tax rates were used because they were specific to the per-person pre-tax earnings, living allowance, and education award amounts.

For the additional lifetime earnings of B&B HV AmeriCorps members that is based on their increase in post-secondary educational attainment—fueled by the use of the education award—as well as for the additional lifetime earnings of the children of B&B HV program participants based on their increase in secondary educational attainment, Trostel (2015) provides additional lifetime federal income tax values. These values are used to calculate the additional income tax revenue realized by the federal government due to members' post-secondary education gains and B&B HV program participants' children's secondary education gains.

Social Security and Medicare tax revenue: Social Security and Medicare tax revenue are measured as fiscal gains as a result of the additional pre-tax earnings of B&B HV AmeriCorps members from their reduced unemployment and as a result of the pre-tax living allowances and education awards amounts received by members. However, tax rates specific to each revenue source are used. Social Security and Medicare use flat tax rates, 6.2 percent and 1.45 percent, respectively; thus, these rates are applied to the additional pre-tax earnings of B&B HV AmeriCorps members to calculate the additional amount of revenue the federal government receives. These same rates are also applied to the living allowance and education award amounts received by B&B HV AmeriCorps members to calculate additional tax revenue.

Moreover, lifetime Social Security tax values are provided by Trostel (2015) by education level. The analysis used these values to estimate the additional lifetime Social Security tax revenue realized by the federal government 1) as a result of B&B HV AmeriCorps

members using their education award to complete different post-secondary education degree types post-service and 2) as a result of the children of B&B HV program participants obtaining a high school diploma due to child maltreatment prevention.

Federal government cost savings: The federal government realizes cost savings in public assistance, social insurance, and corrections due to the increased post-secondary educational attainment of B&B HV AmeriCorps members after program exit. Specifically, the number of additional post-secondary degrees estimated to be earned by B&B HV AmeriCorps members post-service as well as data from Trostel (2015) were used to estimate the federal government portion of lifetime cost savings on social insurance (which is comprised of worker’s compensation and unemployment insurance, as noted earlier), public assistance (e.g., SNAP, Medicaid, TANF, etc.), and corrections.

Table 23 shows the lifetime costs to the federal versus the state and local governments for each of these areas—where applicable—by education level in 2012 dollars as presented in Trostel (2015). The differences in these lifetime costs from one education level to the next represent cost savings per degree obtained.

Table 23. Government Costs by Educational Attainment Level per Individual’s Lifetime*

Source of Government Saving	High School Diploma (2012\$)	Associate Degree (2012\$)	Bachelor’s Degree (2012\$)	Graduate Degree (2012\$)
Public Assistance	\$54,155	\$31,803	\$14,480	\$9,394
Social Insurance	\$9,584	\$8,209	\$5,863	\$4,732
Federal	\$3,964	\$3,570	\$2,660	\$2,090
State/Local	\$5,620	\$4,639	\$3,204	\$2,643
Corrections	\$8,488	\$4,055	\$1,190	\$725
Federal	\$713	\$341	\$100	\$61
State/Local	\$7,775	\$3,714	\$1,090	\$664

Sources: Trostel (2015)

*Numbers may not sum due to rounding.

As mentioned earlier in this appendix, as a result of the B&B HV program, the analysis estimated an additional 17 B&B HV AmeriCorps members would redeem the education award to pursue additional post-secondary education. Based on the portion of degree costs covered by the post-tax education award, this analysis calculated that an additional associate degree, bachelor’s degree, and graduate degree would be obtained due to the B&B HV program. To conservatively calculate the federal government’s lifetime savings associated with these education gains, the differences between the public assistance, federal social insurance, and federal corrections lifetime costs for these education levels and those that precede them are calculated

and then expressed in 2020 dollars. These values are then multiplied by the number of additional post-secondary degrees estimated to be obtained—where appropriate—to represent the total cost savings realized by the federal government due to the B&B HV program. As previously mentioned when discussing the state and local governments' allocation of the reduction in lifetime social insurance and corrections expenditures, the federal government receives 50 percent of the lifetime cost savings in unemployment insurance (part of social insurance; Oswald, 2018), and more than 8 percent of the lifetime cost savings in corrections (Hyland, 2015). These federal government savings are shown in Table 25.

The federal government also realizes lifetime cost savings from child maltreatment prevention that stems from the B&B HV program. The methodology used to calculate these lifetime benefits—that are specific to long-term healthcare, child welfare, criminal justice, and special education—are described in the previous State and Local Government section. Specifically, this analysis estimated that the federal government realizes \$336,324 in lifetime cost savings which are attributable to the B&B HV program.

Table 24 shows the tax rates applied to B&B HV AmeriCorps members' additional pre-tax and post-tax earnings (derived from reduced unemployment), depending on the type of revenue being calculated. It also enumerates the tax rates used for the pre-tax living allowance and education award amounts received by B&B HV AmeriCorps members during their service term or upon service completion, respectively.

Table 24. 2020 Tax Rates and Ratio of Taxable Expenditures for B&B HV AmeriCorps Members' Earnings, Living Allowances, and Education Awards

Metric	Rate for Additional Earnings & Education Award* (%)	Rate for Living Allowance & Education Award** (%)	Notes
Estimated Proportional Federal Income Tax	7.28%	4.91%	<ul style="list-style-type: none"> Tax rates are used which consider the progressive tax brackets and standard deductions specific to federal income taxes. These rates are dependent on and applied to the pre-tax value of each metric being taxed.
Estimated Proportional State Income Tax	2.82%	2.40%	<ul style="list-style-type: none"> Tax rates are used which consider the progressive tax brackets and standard deductions specific to each state's income taxes. Each state's tax rate is weighted based on the state's population and summed to estimate a weighted national average. These rates are dependent on and applied to the pre-tax value of each metric being taxed.

Metric	Rate for Additional Earnings & Education Award* (%)	Rate for Living Allowance & Education Award** (%)	Notes
Social Security Tax	6.20%	6.20%	<ul style="list-style-type: none"> Social Security tax rate for employees and employers. These rates are applied to the pre-tax value of each metric being taxed.
Medicare Tax	1.45%	1.45%	<ul style="list-style-type: none"> Medicare tax rate for employees and employers. These rates are applied to the pre-tax value of each metric being taxed.
Sales Tax	7.43%; N/A to the Education Award	7.43%; N/A to the Education Award	<ul style="list-style-type: none"> The combined state and average local tax rate for each state was summed and weighted based on states' population to calculate a national weighted average sales tax rate. The rate is applied to the additional post-tax earnings of members as well as their post-tax living allowance amount.
Ratio of Taxable Expenditures per National Consumer	44.9%; N/A to the Education Award	53.1%; N/A to the Education Award	<ul style="list-style-type: none"> Percent of post-tax earnings spent on taxable goods and services that is used to calculate sales tax from post-tax earnings. Ratio is dependent on the pre-tax value of members' additional earnings or the pre-tax living allowance amount.

*These rates are only used for the portion of the education award used to repay outstanding student loans.

**These rates are only used for the portion of the education award used for additional schooling.

Sources: Cammenga (2020), Social Security Administration (2020), Consumer Expenditures Survey (U.S. Bureau of Labor Statistics, 2021), and El-Sibaie (2019)

Summary of Benefits to Government

Table 25 shows the amount of tax revenue generated and savings in expenditures for state and local versus federal government that are solely credited to the B&B HV program and calculated using the methods described above. These government revenue and savings amounts are benefits that are included in the three ROI calculations and they are derived from B&B HV program impacts.

Table 25. State/Local and Federal Government Benefits by Stakeholder Group and by Scenario

Benefit Type	Benefit (2020\$)*		
	Short term	Medium term	Long term
State/Local Government Benefits	\$59,690	\$274,224	\$475,784
State Income Tax Revenue from Education Awards and Living Allowances**	\$26,058	\$26,058	\$26,058
State and Local Sales Tax Revenue from Living Allowances	\$29,908	\$29,908	\$29,908
State Income Tax Revenue from Employment	\$1,889	\$23,091	\$37,713
State and Local Sales Tax Revenue from Employment	\$1,835	\$22,438	\$36,647
State Income, Sales, and Property Taxes from Post-secondary Educational Attainment (Lifetime)	\$-	\$34,473	\$68,946
State Income, Sales, and Property Taxes from Secondary Educational Attainment (Lifetime)	\$-	\$16,516	\$33,032
Savings in Reduced Social Insurance and Corrections Spending from Post-secondary Educational Attainment (Lifetime)	\$-	\$2,640	\$5,280
Savings in Reduced Healthcare, Child Welfare, Criminal Justice, and Special Education Spending from Child Maltreatment Prevention (Lifetime)	\$-	\$119,100	\$238,200
Federal Government Benefits	\$146,690	\$609,767	\$1,038,050
Federal Income Tax Revenue Education Awards and Living Allowances**	\$54,543	\$54,543	\$54,543
Social Security and Medicare Tax Revenue from Education Awards and Living Allowances**	\$82,160	\$82,160	\$82,160
Federal Income Tax Revenue from Employment	\$4,869	\$59,523	\$97,215
Social Security and Medicare Tax Revenue from Employment	\$5,119	\$62,577	\$102,204
Federal Income and Social Security Tax Revenue from Post-secondary Educational Attainment (Lifetime)	\$-	\$135,302	\$270,604
Federal Income and Social Security Tax Revenue from Secondary Educational Attainment (Lifetime)	\$-	\$34,695	\$69,390

Benefit Type	Benefit (2020\$)*		
	Short term	Medium term	Long term
Savings in Reduced Social Insurance, Corrections, and Public Assistance Spending from Post-secondary Educational Attainment (Lifetime)	\$-	\$12,805	\$25,610
Savings in Reduced Healthcare, Child Welfare, Criminal Justice, and Special Education Spending from Child Maltreatment Prevention (Lifetime)	\$-	\$168,162	\$336,324
Total	\$206,380	\$883,991	\$1,513,834

*Numbers may not sum due to rounding.

**Living allowances and education awards are one-time taxable payments. The resulting tax revenue does not vary by scenario.

Measuring Forgone Benefits (Opportunity Costs)

The analysis included two types of forgone benefits, referred to opportunity costs, into each of the three ROI calculations to conservatively estimate the return of the B&B HV program: forgone benefits from a professional opportunity cost to B&B HV AmeriCorps members and forgone benefits from an investment opportunity cost to funders. Each of these forgone benefit (opportunity cost) types is subtracted from the total program benefits—that stem from the B&B HV program—to calculate net benefits. Net benefits are then compared to the program cost to calculate each ROI. The methodologies used to calculate these two forgone benefits (opportunity costs) are described below.

Forgone Benefits from Professional Opportunity Cost to B&B HV AmeriCorps Members

There is a professional opportunity cost to B&B HV AmeriCorps members for their period of national service, during which they could have otherwise been working. This includes both the forgone earnings of B&B HV AmeriCorps members for their service term and the forgone taxes associated with those lost earnings. To calculate this, the analysis first used the demographic distribution of B&B HV AmeriCorps members for the 2019–2020 program year—in terms of gender, age, race/ethnicity, and pre-service education level—and ASEC data to estimate the weighted unemployment rate for this population (i.e., 4.2 percent). This represents how many of these B&B HV AmeriCorps members would have been unemployed if they did not serve with the B&B HV program. Using the weighted unemployment rate and the number of B&B HV AmeriCorps member FTEs that served during the 2019–2020 program year (i.e., 37.5), the analysis estimated the number of members that would have been employed without serving with the B&B HV program based on their demographic characteristics (i.e., 2). Then the analysis multiplied this value by the weighted post-tax annual earnings. This is derived from the pre-tax annual earnings listed in Table 16. The methodology used to calculate this latter monetary amount is described in the previous Increased Earnings due to Reduced Unemployment section. The post-tax amount subtracts out all applicable payroll taxes (e.g., federal income, state income, Medicare, and Social Security). The product of multiplying 2 by the weighted post-tax annual earnings represents what B&B HV

AmeriCorps members would have earned in total if they did *not* serve with the B&B HV program. Separately, the analysis then multiplied the number of B&B HV AmeriCorps member FTEs that served by the amount they earned during their national service in the form of a post-tax living allowance (i.e., \$20,221 per person). This represents the aggregate amount B&B HV AmeriCorps members earned during their service term. The difference between what they would have earned if they did not serve and what they did earn because they served equals the total post-tax earnings forgone due to serving with the B&B HV program. These values and the formula used to calculate the forgone post-tax earnings are shown in Table 26.

Table 26. Forgone Earnings of B&B HV AmeriCorps Members for a Service Term

Row	Component	Value*	Source
A	B&B HV AmeriCorps Member FTEs	37.5	CAPC
B	Weighted Unemployment Rate (%)	4.2%	ASEC (2019) & CAPC
C	Weighted Post-tax Annual Earnings per Person (2020\$)	\$29,352	ASEC (2019), CPI, & CAPC
D	Post-Tax Living Allowance per Person	\$20,221	CAPC
E	Total Post-Tax Earnings Forgone (2020\$)	\$296,719	$[A \times (1 - B) \times C] - (A \times D)$

*Numbers may not total due to rounding.

The second portion of this professional opportunity cost was the forgone taxes associated with the earnings of B&B HV AmeriCorps members lost for this year of service. Federal income, state income, Social Security, and Medicare taxes specific to the per-person weighted pre-tax earnings amount were calculated. Specifically, the estimated proportional federal and state income tax rates used were 7.3 and 2.8 percent, respectively. The analysis also estimated the sales taxes lost based on the per-person post-tax earnings forgone by the B&B HV AmeriCorps members. Using data from the Consumer Expenditure Survey (U.S. Bureau of Labor Statistics, 2021), the analysis estimated that based on the per-person weighted pre-tax earnings of B&B HV AmeriCorps members (i.e., \$35,687), 44.9 percent of their income would have been spent on taxable goods, opposed to 53.1 percent of the living allowance. Then the weighted combined state and local sales tax rate (i.e., 7.43 percent)—used earlier in this analysis to calculate government benefits—was applied to the difference in expected spending on taxable goods to represent the resulting sales tax revenue lost due to individuals serving with the B&B HV program instead of working for higher pay. The totals for these taxes are listed in Table 27.

Table 27. Forgone Taxes Associated with the Forgone Earnings of B&B HV AmeriCorps Members for a Service Term*

Forgone Taxes	Taxes without Service Term (2020\$)	Taxes Realized from Living Allowance (2020\$)	Net Taxes Forgone (2020\$)
Federal Forgone Taxes (i.e., Federal Professional Opportunity Cost)	\$191,460	\$111,998	\$79,461
Federal Income Taxes	\$93,335	\$43,787	\$49,548
Social Security and Medicare Taxes	\$98,125	\$68,211	\$29,913
Non-Federal Forgone Taxes	\$71,392	\$51,272	\$20,120
State Income Taxes	\$36,208	\$21,364	\$14,844
Sales Taxes	\$35,184	\$29,908	\$5,276
Total Taxes	\$262,851	\$163,271	\$99,581

*Numbers may not sum due to rounding.

For the *federal government benefits per federal dollar* ROI calculation, only federal government (not total) benefits are included. Because of this, only federal components of the professional opportunity cost are subtracted from all federal government benefits—realized due to the B&B HV program—in this ROI calculation. The parts of the professional opportunity cost subtracted from these total federal government benefits include the forgone net federal income taxes (i.e., \$49,548) and the net forgone Social Security and Medicare taxes (i.e., \$29,913). The sum of these two values is called the federal professional opportunity cost. The sum of all the values listed in Table 27 and the forgone post-tax earnings of B&B HV AmeriCorps members is called the total professional opportunity cost. These naming conventions are referenced in the Calculating ROI section.

Forgone Benefits from the Investment Opportunity Cost to Funders

The investment opportunity cost estimates the expected forgone return if funds used to support the activities and positions of B&B HV AmeriCorps members during the most recent program year were invested in U.S. Treasury bonds instead. An investment opportunity cost is calculated for two different funding streams: 1) all B&B HV program funding for the 2019–2020 program year and 2) only federal funding for the same program year. This is done because two of the three ROI calculations only have federal (not total) program costs included. Thus, for 1) the *federal government benefits per federal dollar* and 2) the *total benefits per federal dollar* ROI calculations, the investment opportunity cost subtracted from the benefits in these calculations is the forgone accrued interest from investing only the federal funds into these U.S. Treasury bonds. For the other ROI calculation, the investment opportunity cost subtracted from the benefits realized is the forgone accrued interest from investing all B&B HV program funds (both federal and non-federal) into these U.S. Treasury bonds. Therefore, the analysis estimated forgone accrued interests across all three scenarios when 1) all B&B

HV program funds and 2) only federal B&B HV program funds are invested in U.S. Treasury bonds.

To calculate these forgone accrued interest values, the analysis first matched 2019 real interest rates provided by the Office of Management and Budget (2020) to each of the scenarios included in this ROI analysis. The analysis used 2019 real interest rates for U.S. Treasury bonds because the B&B HV program year analyzed began in 2019. The real interest rate for the 3-year maturity was used for the short-term scenario, the average between the 10-year and 20-year maturity rates was used as the rate for the medium-term scenario, and the 30-year maturity rate was used for the long-term scenario. These real interest rates were 1.3, 1.45, and 1.5 percent, respectively. Also, the number of years elapsed on these U.S. Treasury bonds was equal to the number of years the different scenarios assumed B&B HV AmeriCorps members' employment and earnings gains were sustained. These values are one year, 15 years, and 30 years for the short-, medium-, and long-term scenarios, respectively. Given that U.S. Treasury bonds compound bi-annually according the U.S. Department of Treasury, the formula used to calculate the forgone accrued interest for each of the three scenarios for the two funding streams is listed in Figure 3, where A equals the forgone accrued interest (e.g., the investment opportunity cost), P equals the amount of one of the funding streams, r equals the 2019 real interest rate, and t equals the number of years elapsed.

Figure 3. Compound Interest Formula Used to Calculate Investment Opportunity Cost

$$A = P \left(1 + \frac{r}{2} \right)^{t*2} - P$$

Based on this formula, the forgone benefits from the investment opportunity cost calculated by scenario and funding stream are listed in Table 28, along with their associated inputs. The forgone accrued interest amounts for all funding are called the total investment opportunity costs while that for federal funding only are called the federal investment opportunity costs. These naming conventions are referenced in the Calculating ROI section.

Table 28. Forgone Benefits from Investment Opportunity Cost Calculation by Scenario and Funding Stream

Metric	Short term		Medium term		Long term	
	All Funding	Federal Funding Only	All Funding	Federal Funding Only	All Funding	Federal Funding Only
Real Interest Rate	1.30%		1.45%		1.50%	
Years Elapsed	1		15		30	
Funding Amount	\$1,337,219	\$614,444	\$1,337,219	\$614,444	\$1,337,219	\$614,444
Forgone Return (Accrued Interest)	\$17,440	\$8,014	\$323,594	\$148,690	\$756,439	\$347,579

Measuring Program Costs

Table 29 shows the costs of the B&B HV program by funding source. AmeriCorps contributions covered nearly half of the program's annual operating costs given that it supplies the AmeriCorps State and National grant as well as the expected education awards received by B&B HV AmeriCorps members. Other non-AmeriCorps funders (i.e., state and local governments) matched 118 percent of AmeriCorps's contribution for the most recently completed program year. That matched amount represented 54 percent of total B&B HV program funding for the year.

Table 29. Funding Sources and Amounts for the B&B HV Program (2019–2020)*

Funding Source	Amount (\$)	Percent of Total (%)
AmeriCorps Grant	\$432,113	32.3%
Living Allowance	\$273,328	20.4%
Worker's Compensation	\$5,467	0.4%
FICA	\$20,910	1.6%
Other	\$132,408	9.9%
State/Local Governments (i.e., Match Funding)	\$722,775	54.1%
Healthcare	\$11,578	0.9%
Living Allowance	\$618,322	46.2%
Worker's Compensation	\$12,366	0.9%
FICA	\$47,302	3.5%
Other	\$33,207	2.5%
Expected Education Awards	\$182,332	13.6%
Total	\$1,337,219	100.0%

Source: CAPC

*Numbers may not sum due to rounding.

Calculating ROI

To complete the three ROI calculations for the B&B HV program, the sum of applicable program benefits is reduced by the forgone benefits, or the professional and investment opportunity costs (where appropriate) and then compared to the cost of the program. As described previously, these three ROI calculations are calculated for each of the three scenarios: short-term, medium-term, and long-term.

Since two of the calculations include benefits to society (e.g., B&B HV AmeriCorps members, children of B&B HV program participants, etc.), the results are expressed as cost–benefit ratios, while maintaining the ROI terminology. Specifically, these ratios take the form of the sum of monetized benefits over the sum of applicable program costs. The ROIs expressed as cost–benefit ratios in this study can be interpreted as the amount of dollars returned for every \$1 of investment (or program cost).³²

³² ROIs can be expressed in percentages or as ratios, such as in this study. Although not shown as a ratio in the results, the ROIs in this study show the amount of return for every \$1 invested.

The formulas used to calculate each of the three ROIs are shown below:³³

$$\text{Total Benefits per Federal Dollar} = \frac{(\text{Benefits to Non-government Stakeholders} + \text{Benefits to Government}) - (\text{Forgone Benefits from Total Professional Opportunity Cost} + \text{Forgone Benefits from Federal Investment Opportunity Cost})}{(\text{AmeriCorps Federal Funding})}$$

$$\text{Total Benefits per Funder Dollar} = \frac{(\text{Benefits to Non-government Stakeholders} + \text{Benefits to Government}) - (\text{Forgone Benefits from Total Professional Opportunity Cost} + \text{Forgone Benefits from Total Investment Opportunity Cost})}{(\text{AmeriCorps Federal Funding} + \text{Non-federal Match Funding})}$$

$$\text{Federal Government Benefits per Federal Dollar} = \frac{(\text{Benefits to the Federal Government}) - (\text{Forgone Benefits from Federal Professional Opportunity Cost} + \text{Forgone Benefits from Federal Investment Opportunity Cost})}{(\text{AmeriCorps Federal Funding})}$$

Tables 30, 31, and 32 show the total benefits, opportunity costs, program costs, and ROI results for each scenario.

Table 30. ROI Calculations for Short-term Scenario

Components	Total Benefits per Federal Dollar (2020\$)	Total Benefits per Funder Dollar (2020\$)	Federal Government Benefits per Federal Dollar (2020\$)
Total Program Benefits	\$1,082,349	\$1,082,349	\$146,690
Total Forgone Benefits (Opportunity Costs)	\$413,740	\$413,740	\$87,475
Total Program Costs	\$614,444	\$1,337,219	\$614,444
Result	\$1.10	\$0.50	\$0.10

³³ Non-government stakeholders in this ROI analysis include B&B HV AmeriCorps members and the children of B&B HV program participants.

Table 31. ROI Calculations for Medium-Term Scenario

Components	Total Benefits per Federal Dollar (2020\$)	Total Benefits per Funder Dollar (2020\$)	Federal Government Benefits per Federal Dollar (2020\$)
Total Program Benefits	\$2,645,166	\$2,645,166	\$609,767
Total Forgone Benefits (Opportunity Costs)	\$719,894	\$719,895	\$228,151
Total Program Costs	\$614,444	\$1,337,219	\$614,444
Result	\$3.13	\$1.44	\$0.62

Table 32. ROI Calculations for Long-Term Scenario

Components	Total Benefits per Federal Dollar (2020\$)	Total Benefits per Funder Dollar (2020\$)	Federal Government Benefits per Federal Dollar (2020\$)
Total Program Benefits	\$3,968,500	\$3,968,500	\$1,038,050
Total Forgone Benefits (Opportunity Costs)	\$1,152,740	\$1,152,740	\$427,040
Total Program Costs	\$614,444	\$1,337,219	\$614,444
Result	\$4.58	\$2.11	\$0.99

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