

Return on Investment Study: Minnesota Reading Corps— Kindergarten

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Executive Summary

Minnesota Reading Corps

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—AmeriCorps and AmeriCorps Seniors—as a major resource to sustain operations. ROI analyses have the potential to help AmeriCorps measure the performance of programs and to help build the base of evidence for future resource allocation decisions. In addition, ROI study results will help AmeriCorps communicate the value of its programs to relevant stakeholders. This ROI study measures the benefits of Minnesota Reading Corps (MRC) programming for kindergarten (MRC Kindergarten) against its costs.

Since its launch in 2003, MRC has used research-based literacy instruction in school settings to help children from age three through grade three learn to read. The program includes literacy enrichment at the pre-kindergarten (PreK) level and tutoring for both PreK and kindergarten through third grade (K–3) students. AmeriCorps tutors work with children one-on-one and in small groups daily, providing literacy interventions that are tailored to each learner’s needs. AmeriCorps tutors begin their service with rigorous training from literacy experts, who give them the knowledge and tools they need to be effective and confident. An on-site coach, usually a literacy specialist or teacher at the school, provides daily support to tutors and conducts regular check-ins to make sure the tutoring is on track.

Key Results

This study estimates the ROI of MRC’s work with kindergartners to be between \$5.47 and \$6.99 per funder dollar, depending on how long program participants and AmeriCorps members experience increased earnings as a result of MRC. The return on each dollar of federal support for the program is even higher. The magnitude of the results is driven by strong future employment and earnings outcomes for participants. The magnitude of the results is also driven by benefits of national service to AmeriCorps members that increase their future earnings.

MRC Impacts: Selected Evaluation Results

MRC evaluations have particularly robust findings for work with kindergartners. Below are high-level findings from 2014 and 2018 evaluations of MRC:

- In 2014 and 2018, letter sound fluency for kindergartners who participated in MRC increased by 74 and 68 percent, respectively, over kindergartners who did not participate in MRC.
- The mean scores of letter sound fluency for kindergartners who participated in MRC almost doubled the winter benchmark in 2014 and met the winter benchmark in 2018.

Sources: Markovitz et al. (2014, 2018)

MRC is the largest AmeriCorps State program in the country. The program's host organization, Reading & Math, Inc., recruits, trains, places, and monitors AmeriCorps members. During the 2017–2018 school year, MRC served more than 600 schools statewide, reaching more than 20,000 students. Twelve additional states and the District of Columbia have adopted the Reading Corps program. Nationwide, the program reaches more than 36,000 at-risk students annually. MRC tutors have helped more than 200,000 struggling Minnesota students become strong readers by the end of third grade (Minnesota Reading Corps, 2019b).

This ROI analysis evaluates the costs and benefits from MRC's kindergarteners exclusively. This is due to the results of the Markovitz et al. (2014, 2018) evaluations of the K–3 program. Kindergarten alone demonstrated both a) a statistically significant improvement in reading fluency in the treatment group over the control group, and b) achievement of the reading benchmark for the treatment group but not the control group. The latter factor enables the analysis to use research that links benchmark achievement to long-term outcomes.

Return on Investment Study Methods

The methodology for the MRC Kindergarten ROI study consisted of the following components:

1. **Measuring and monetizing program benefits.** This included using data from previous evaluations and other third-party sources to determine benefits. Benefits are realized across three stakeholder groups: MRC Kindergarten participants, MRC Kindergarten AmeriCorps members, and the government. Specifically, the benefits realized include future increased earnings for MRC Kindergarten program participants and AmeriCorps members. AmeriCorps members also earn education awards after their service and receive living allowances during their service, which are both member benefits. Government benefits include tax revenue generation from increased economic activity and future earnings, as well as reduced spending on corrections, public assistance, and social insurance. This analysis monetized program benefits using various proxies and summed those amounts to quantify the impact of the MRC Kindergarten program in 2019 dollars.
2. **Assessing program costs.** MRC Kindergarten program costs were analyzed for the 2017–2018 academic year in 2019 dollars. Total MRC Kindergarten costs and benefits are scaled using the percentage of MRC students in kindergarten to develop the figures used in the ROI calculations.
3. **Calculating the ROI.** The ROI analysis consisted of three ROI calculations: 1) total benefits per federal dollar, 2) total benefits per funder dollar,¹ and 3) federal government benefits per federal dollar.

¹ The different funder groups whose investment is in this calculation include the federal government (i.e., AmeriCorps; 48 percent), the state government (27 percent), private entities (4 percent), and in-kind donations (21 percent).

The analysis calculated the value of these ROI calculations under three scenarios representing different assumptions about the persistence of program outcomes. The analytical framework included only those benefits that could be reasonably monetized given the available data, and that likely would not have occurred without the AmeriCorps program. Figure ES 1 shows how MRC Kindergarten program activities can result in benefits to MRC Kindergarten participants, AmeriCorps members, and the government.

Figure ES 1. Benefits among MRC Kindergarten Participants, AmeriCorps Members, and Government Derived from MRC

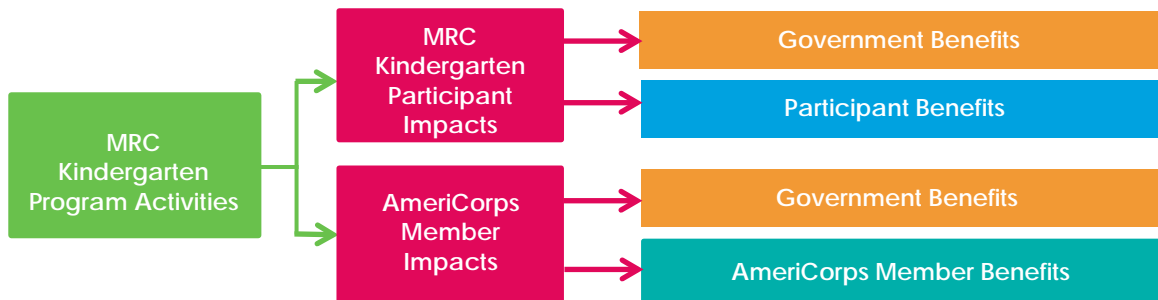


Figure ES 2 shows the benefits and costs that are included in each of the three types of ROI calculations.

Figure ES 2. Benefits and Costs Included in the ROI Calculations

ROI Calculation	Benefits (numerator)	Costs (denominator)
Total Benefits per Federal Dollar (proportional to kindergarteners)	All participant, AmeriCorps member, and government benefits derived from MRC Kindergarten	<ul style="list-style-type: none"> Federal AmeriCorps funding
Total Benefits per Funder Dollar (proportional to kindergarteners)	All participant, AmeriCorps member, and government benefits derived from MRC Kindergarten	<ul style="list-style-type: none"> Federal AmeriCorps funding Budgeted match funding All other funding
Federal Government Benefits per Federal Dollar (proportional to kindergarteners)	Additional tax revenue generation and reduced spending attributable to MRC Kindergarten	<ul style="list-style-type: none"> Federal AmeriCorps funding

Available data established that both MRC Kindergarten participants and AmeriCorps members experience increased educational attainment leading to positive future employment impacts and increased earnings as a result of the program. However, the data do not establish the duration of the increased earnings 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.
- **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 2019 dollars.³
- **Long-Term.** This scenario assumes sustained earnings impacts throughout MRC Kindergarten participants' and AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A discount rate of 3 percent is applied to the earnings each year to represent net present value in 2019 dollars.

The only difference between the three scenarios is the length of time that increased employment and earnings are sustained; all other benefits are held constant.

Note that future employment and earnings impacts for MRC Kindergarten participants will only be captured in the medium-term and long-term scenarios because the kindergarten-age participants would not graduate high school for another 12 years.

Benefits and Costs

Figure ES 3 shows the estimates of monetized benefits of MRC Kindergarten by stakeholder group for each of the three scenarios. Across all scenarios, roughly half of the benefits are to the federal government, with the remaining benefits roughly split between MRC Kindergarten participants and AmeriCorps members. The vast majority of federal government economic benefits are derived from the present value of long-term decreases in social spending such as reduced crime, welfare, Medicare, and Medicaid, in addition to increased federal tax revenue from increased future earnings of MRC Kindergarten participants and AmeriCorps members.

² These three scenarios consider varying durations of how long increased employment and earnings benefits last for both MRC Kindergarten participants and AmeriCorps members. Certain additional benefits are included equally across these three scenarios. Specifically, lifetime benefits with regard to decreased public assistance, social insurance, and corrections costs as a result of members' higher educational attainment post-service are represented in each of these three scenarios equally. Thus, whether members' employment and earnings impacts are sustained for one year (i.e., short-term scenario) or 30 years (i.e., long-term scenario), the same amount of these cost savings is realized.

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).

Figure ES 3. Benefits from MRC Kindergarten Program by Recipient

Recipient	Benefits by Scenario (2019\$)		
	Short-Term	Medium-Term	Long-Term
MRC Kindergarten Participants (percent of total)	\$8,753,559 (25%)	\$10,184,419 (26%)	\$14,264,049 (32%)
MRC Kindergarten AmeriCorps Members (percent of total)	\$6,749,147 (19%)	\$8,310,903 (21%)	\$8,803,705 (20%)
Federal Government (percent of total)	\$19,465,664 (56%)	\$20,473,813 (53%)	\$21,679,205 (48%)
Total MRC Kindergarten Benefits (total percent)	\$34,968,370 (100%)	\$38,969,135 (100%)	\$44,746,958 (100%)

Note: All benefits are proportional to the number of kindergarteners in the program.

Figure ES 4 shows the cost of the MRC Kindergarten program by funding source. The total cost of the MRC Kindergarten program for the 2017–2018 academic year was \$17,831,041. Roughly half of MRC Kindergarten program costs were funded by the federal government. In-kind donations consisted of staffing and other operating needs. For example, internal coaches paid by their school districts contributed a small portion of their time to support the MRC Kindergarten program as an in-kind donation. These costs are scaled using the ratio of kindergarteners to all students served. Note that all dollar values are shown in 2019 dollars to allow for a comparison of costs and benefits across time.

Figure ES 4. Cost of MRC Kindergarten by Funding Source

Funder	Funding Provided for the Program Year (2019\$)	Percent of Total (%)	Scaled Kindergarten Funding – 31% Students Served (2019\$)
MRC 2017-2018 Sources			
Federal Government	\$8,663,263	42%	\$2,664,176
State Government	\$4,904,285	24%	\$1,508,193
Private Entities	\$722,850	3%	\$222,295
In-kind Donations	\$3,805,950	18%	\$1,170,427
MRC Subtotal	\$18,096,349	87%	\$5,565,091
AmeriCorps Educational Stipends*	\$2,708,857	13%	\$833,043
Total	\$20,805,205	100%	\$6,398,134

*Anticipated educational stipends for AmeriCorps members to be paid out following their service year.

Note: Values may not sum due to rounding.

ROI Results

For each ROI calculation, this analysis developed three ROI estimates using the three scenarios (short-term, medium-term, and long-term). Figure ES 5 shows the ROI results for the MRC Kindergarten program. The ROIs expressed as cost–benefit ratios in this study can be interpreted as the number of dollars returned for every dollar of investment (or cost).⁴

Figure ES 5. ROI Results for MRC Kindergarten

ROI Calculation (2019\$)	ROI Scenario (Proportional to Kindergarteners)		
	Short-Term	Medium-Term	Long -Term
Total Benefits per Federal Dollar	\$10.11	\$11.27	\$12.94
Total Benefits per Funder Dollar	\$5.47	\$6.09	\$6.99
Federal Government Benefits per Federal Dollar	\$5.63	\$5.92	\$6.27

Under the short-term scenario for the first row of Figure ES 5, the ROI of total benefits divided by *federal government spending* is \$10.11. This indicates that MRC Kindergarten participants, AmeriCorps members, and the government realize a combined return of \$10.11 on every dollar invested by the federal government (i.e., AmeriCorps). Under the long-term scenario, MRC Kindergarten total benefits per federal dollar are \$12.94.

The second ROI calculation looked at total benefits per *funder* dollar, with results ranging from \$5.47 to \$6.99. The third ROI calculation looked at *federal government benefits per federal dollar*, with results ranging from \$5.63 to \$6.27.

Across all scenarios and all ROI calculations, this analysis demonstrates that MRC Kindergarten is an impactful use of federal funds. Leveraging AmeriCorps support, MRC Kindergarten generates benefits that are at least five times greater than costs.

Given the different assumptions of the three scenarios, the respective benefits across all three ROI calculations are larger than their associated costs. At a minimum—when considering solely the federal government investment provided by AmeriCorps and the benefits that would be realized for the federal government alone—the MRC Kindergarten program still yields a positive return (as shown under the short-term scenario with an ROI of \$5.63 per dollar invested).

The magnitude of the positive ROI calculations is driven by several factors, including:

⁴ Since two of the calculations include benefits to society (i.e., MRC program participants and AmeriCorps members), 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 costs. ROIs are often expressed as percentages when measuring the financial return to a single entity from that entity's investment. Although this is consistent with one of the three ROI metrics reported (ROI to federal government), since the other ROIs lend themselves to a cost–benefit ratio, that ratio is consistently used for all three metrics. Although not shown as a ratio, the results should be interpreted as the return for every dollar of investment.

- **The expected long-term benefits/cost savings of increased high school credential attainment for MRC kindergarteners.** Levin et al. (2007) found that the present value of lifetime federal economic benefits expected per high school graduate compared to a high school dropout ranges from \$118,000 to \$206,000, by race and gender. Applying the findings from Markovitz et al. (2014, 2018), Stanley et al. (2018), and Hernandez (2012), the MRC Kindergarten program is estimated to prevent 97 kindergarteners from becoming high school dropouts.
- **The employment outcomes of AmeriCorps members.** According to the national AmeriCorps Alumni Outcomes Survey study (Friedman et al., 2016), the percentage of members unemployed was 5 percentage points lower six months after serving in AmeriCorps versus six months before. This analysis assumed that MRC Kindergarten AmeriCorps members ages 35 and younger would experience increased employment.
- **The educational benefits to AmeriCorps members.** AmeriCorps alumni can use education award funds to help pay for postsecondary degrees after exiting the program. Increased educational attainment for these individuals generates a stream of positive impacts for both the individual and the government, such as increased income, decreased reliance on social programs, and decreased criminality. Note that these benefits are scaled down using the ratio of the dollar value of the education award to the average cost of tuition for each respective degree type.⁵ Additionally, AmeriCorps alumni can use education awards to repay student loans. In this case, only the value of the post-tax education award is assumed to be a cost savings for members due to avoided out-of-pocket cost

⁵ This analysis treats the use of the education award to attend school or to repay loans in the same fashion. For example, if the dollar value of the education award is equal to 6 percent of the full cost of tuition for a bachelor's degree, AmeriCorps is credited with 6 percent of the benefits of attaining that degree, whether the member used the award to attain a bachelor's degree after completing service, or to repay the loan for a bachelor's degree attained pre-service.

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 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 process 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 for each selected program.

Upon completion of five feasibility studies, AmeriCorps selected four programs to be the subject of ROI studies: College Possible, the Community Technology Empowerment Project, Minnesota Reading Corps (MRC), and AmeriCorps Seniors' Foster Grandparent and Senior Companion Programs. This ROI study measures the benefits of MRC's programming for kindergarten against its costs based on the analytical approach and data sources specified in its respective feasibility study.

Study Overview

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. The section also provides a brief history of past evaluations and outlines the factors that made this program a strong selection for an ROI study.
- **ROI Methodology** outlines how this analysis used various data sources to monetize benefits derived from the MRC Kindergarten program and describes its program costs.
- **Benefits, Costs, and ROI Results** provides a detailed description of the benefits and costs that are inputs into the ROI analyses and presents the results of the three ROI calculations.
- **Recommendations for Further Research** explores ways in which 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

Since its launch in 2003, MRC has used research-based literacy instruction in school settings to help children from age three through grade three learn to read. The program includes literacy enrichment at the pre-kindergarten (PreK) level and tutoring

for both PreK and kindergarten through third grade (K–3) students. AmeriCorps tutors work with children one-on-one and in small groups daily, providing literacy interventions that are tailored to each learner’s needs. AmeriCorps tutors begin their service with rigorous training from literacy experts, who give them the knowledge and tools they need to be effective and confident. An on-site coach, usually a literacy specialist or teacher at the school, provides daily support to tutors and conducts regular check-ins to make sure the tutoring is on track (Minnesota Reading Corps, 2019a).

MRC is the largest AmeriCorps State program in the country. The program’s host organization, Reading & Math, Inc., recruits, trains, places, and monitors AmeriCorps members. During the 2017–2018 school year, MRC served more than 600 schools statewide, reaching more than 20,000 students. Twelve additional states and the District of Columbia have adopted the Reading Corps program. Nationwide, the program reaches more than 36,000 at-risk students annually. MRC tutors have helped more than 200,000 struggling Minnesota students become strong readers by the end of third grade (MRC, 2019b).

Minnesota Reading Corps Evaluation History

Two evaluations—Markovitz et al. (2014,⁶ 2018)—measured the impacts of the MRC program. These evaluations, conducted by the non-partisan and objective research organization NORC at the University of Chicago, executed randomized control trials as well as experimental and non-experimental analyses of the MRC program. The main objectives of the evaluations were to determine the impact of the MRC program on student literacy outcomes, and whether program impacts vary by participant characteristics, such as demographics.

Both studies evaluated K–3 students throughout the state of Minnesota. The 2014 study evaluated schools that enrolled in the voluntary program. Within those schools, the study implemented a randomized control trial, randomly assigning 1,300 K–3 students at 23 schools during the 2012–2013 school year to treatment and control groups for the fall semester, and matching each student with another in the opposite research group. The 2018 study largely replicated the 2014 design, but with roughly half of the sample size.⁷ Given the robust methods applied, this ROI study is based on the findings from both the Markovitz et al. (2014, 2018) NORC evaluations.

The ROI analysis estimates the costs and benefits of MRC’s kindergarten programming only. Kindergarten was the only grade level for which evaluation results met two conditions necessary for ROI analysis:

⁶ This study was funded by AmeriCorps.

⁷ Differences between the Markovitz et al. 2014 and 2018 evaluations include that in the 2018 evaluation, the second and third graders received a full year of the MRC program; it evaluated second and third grade students who scored farthest from the benchmark in the fall; it included only Innovative Approaches to Literacy (IAL) grant recipient schools (i.e., rural and high-poverty urban); and it included independent outcome assessment data collection.

1. **Difference in reading fluency.** If the evaluation did not demonstrate a significant difference between treatment and control groups, it would not be defensible to attribute future benefits to the program.
2. **Difference in meeting benchmarks.** Studies of the long-term impacts of early childhood reading ability rely on whether a student has met benchmarks. Therefore, stronger reading performance by treatment groups compared to control groups alone would not justify including a grade level in the ROI analysis. Grade levels would need to have a difference in whether the treatment and control groups met the benchmark as well.

See Appendix B for more information on the selection of kindergarten as the focus of this analysis.

Key findings related to MRC Kindergarten from the Markovitz et al. (2014, 2018) studies include the following:

- Kindergarteners who participated in MRC saw a percentage increase of 74 and 68 in letter sound fluency scored in 2014 and 2018, respectively, over kindergarteners who did not participate in MRC.
- The mean scores of letter sound fluency for kindergarteners who participated in MRC almost doubled the winter benchmark in 2014 and met the winter benchmark in 2018.

This ROI study used these improvements in letter sound fluency and applied additional results from the literature as well as MRC Kindergarten participant demographics to estimate increased educational outcomes among MRC Kindergarten participants (Hernandez, 2012; Stanley et al., 2018).⁸

Selection of MRC for the AmeriCorps ROI Project

ICF recommended making the MRC program the subject of an ROI analysis based on a comprehensive feasibility study. The feasibility study noted the Markovitz et al. (2014, 2018) studies of the program and explored how to use available data to monetize relevant benefits and costs. Based on its review, ICF concluded that the K–3 program—potentially restricted to one or more grade levels—was feasible as the subject of an ROI analysis. ICF reached this conclusion based on a review of the existing literature connecting literacy outcomes to attainment of long-term outcomes, specifically high school graduation. As discussed in the methodology, estimating high school graduation impacts allows the ROI analysis to include monetary estimates of outcomes related to earnings and public expenditures on health, criminal justice, and welfare.

⁸ The literature, including Stanley et al. (2018) and Hernandez (2012), can be combined to yield estimated benefits of kindergarten literacy and a reduced high school dropout rate. Stanley et al. (2018) found that kindergarten literacy may explain approximately 36 percent of the variance in third grade oral reading fluency. Hernandez (2012) connects third grade reading scores to high school graduation rates and found that 16 percent of non-proficient third grade readers drop out of high school, and only 4 percent of proficient third grade readers drop out of high school.

The feasibility study also identified research that could be used to quantify the benefits to AmeriCorps members due to their involvement in MRC via national service. In particular, a 2016 study by Freidman et al. documented the post-national service employment outcomes associated with serving in AmeriCorps. Additionally, Zeidenberg et al. (2016) estimated the extent to which national service increases members' educational attainment. Including these additional data allowed an expanded array of benefits of the MRC program to be captured in the ROI analysis.

ROI Methodology

The methodology for the MRC Kindergarten ROI study consists of the following components:

1. **Measuring and monetizing program benefits.** This includes using data from previous evaluations and other third-party sources to determine the benefits to the MRC Kindergarten program participants, AmeriCorps members, and the government. The benefits realized across these three stakeholder groups include:
 - MRC Program Participants. Increased education leading to increased earnings.
 - AmeriCorps Members. Living allowances received during their service, education awards received following service, and increased earnings post-service.
 - Government. Income, Social Security, and Medicare tax revenue from MRC Kindergarten participants' and members' increased earnings and sales tax revenue from the increased economic activity that results from those increased earnings. Government benefits also include reduced spending on corrections, public assistance, and social insurance associated with the increased educational attainment of MRC Kindergarten participants and AmeriCorps members.

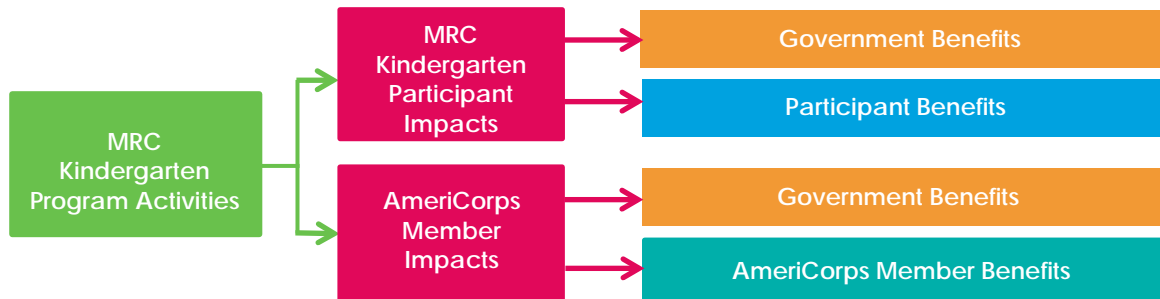
This ROI analysis monetized MRC Kindergarten program benefits in 2019 dollars.

2. **Assessing program costs.** MRC Kindergarten program costs are based on the MRC program budget and consist of federal and other funding for the 2017–2018 fiscal year in 2019 dollars.⁹
3. **Calculating the ROI.** Total MRC costs and benefits are scaled using the percentage of MRC students in kindergarten to develop the figures used in the ROI calculations. The ROI analysis includes three ROI calculations, which are each assessed under three scenarios representing different assumptions about the persistence of program outcomes:
 - Total benefits per federal dollar
 - Total benefits per funder dollar
 - Federal government benefits per federal dollar

⁹ The different funder groups whose investment is in this calculation include the federal government (i.e., AmeriCorps; 48%), the state government (27%), private entities (4%), and in-kind donations (21%).

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 AmeriCorps program. Figure 1 shows how MRC Kindergarten program activities can result in MRC Kindergarten participant, AmeriCorps member, and government benefits.

Figure 1. Benefits among MRC Kindergarten Participants, AmeriCorps Members, and Government Derived from MRC Kindergarten



Available data established that both MRC Kindergarten participants and AmeriCorps members enjoy positive future earnings impacts because of MRC Kindergarten. However, the data do not establish the duration of these benefits. To address a range of possible durations for these benefits, the analysis developed three scenarios:¹⁰

- **Short-Term.** This scenario assumes short-term earnings impacts. The assumption is that earnings impacts are limited to a single year.
- **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 2019 dollars.¹¹
- **Long-Term.** This scenario assumes sustained earnings impacts throughout MRC Kindergarten participants' and AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A discount rate of 3 percent is applied to the earnings each year to represent net present value in 2019 dollars.

The only difference between the three scenarios is the length of time that increased employment and earnings are sustained; all other benefits are held constant.

¹⁰ These three scenarios consider varying durations of how long increased employment and earnings benefits last for both MRC participants and AmeriCorps members. Certain additional benefits are included equally across these three scenarios. Specifically, lifetime benefits with regard to decreased public assistance, social insurance, and corrections costs as a result of participants' and members' higher educational attainment post-program and post-service, respectively, are represented in each of these three scenarios equally. Thus, whether participants' or members' employment and earnings impacts are sustained for one year (i.e., short-term scenario) or 30 years (i.e., long-term scenario), the same amount of these cost savings is realized.

¹¹ 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).

The three scenarios consider varying durations of how long increased employment and earnings benefits last for both MRC kindergartener participants and AmeriCorps members. Certain additional benefits are included equally across these three scenarios. For instance, lifetime benefits with regard to decreased public assistance, social insurance, and corrections costs as a result of both MRC Kindergarten participants' and AmeriCorps members' higher educational attainment are represented in each of these three scenarios equally as present values. Thus, whether members' employment and earnings impacts are sustained for one year (i.e., short-term scenario) or 30 years (i.e., long-term scenario), the same present value amount of these lifetime cost savings are realized.

The long-term scenario (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. The medium-term scenario (15 years of sustained employment and earnings benefits) represents the midpoint between the short-term and long-term scenarios.

Monetizing Benefits and Costs

This analysis monetized an array of benefits and included MRC Kindergarten costs all in 2019 dollars to assess the ROI. Additional details on the methodology employed and the calculations used for this analysis are in Appendix B.

Benefits

MRC results in monetizable benefits to MRC Kindergarten participants, AmeriCorps members, and the government. Figure 2 summarizes these benefits and data sources by stakeholder group.

Figure 2. Benefits Realized from MRC Kindergarten by Stakeholder Group

Stakeholder Group	Benefits	Data Sources*
MRC Kindergarten Participants	<ul style="list-style-type: none"> Additional earnings from increased education¹² 	<ul style="list-style-type: none"> Markovitz et al. (2014, 2018) Reading & Math, Inc.¹³ Stanley et al. (2018) Hernandez (2012) Levin et al. (2007) Current Population Survey (CPS) earnings (U.S. Census Bureau, 2018) Consumer Price Index (U.S. Bureau of Labor Statistics, n.d.)
AmeriCorps Members	<ul style="list-style-type: none"> Education awards Additional earnings from increased education due to education award Living allowances Additional earnings from increased employment (Friedman et al., 2016) 	<ul style="list-style-type: none"> Friedman, et al. (2016) Zeidenberg, et al. (2016) Reading & Math, Inc. CPS earnings (U.S. Census Bureau, 2018) Trostel (2015) Consumer Price Index (BLS, n.d.)

¹² Because MRC Kindergarten participants are in the 5 to 6 age range during the 2018 program year, additional earnings from increased education are only estimated in the medium-term and long-term scenarios for the years that occur after participants are expected to graduate from high school.

¹³ Unless otherwise cited, all information provided directly by Reading & Math, Inc. for this report was received through ICF’s personal communication with Reading & Math, Inc. in 2019.

Stakeholder Group	Benefits	Data Sources*
Government	<ul style="list-style-type: none"> • Tax revenue from increased MRC Kindergarten participant earnings post-program and sales tax revenue from the induced increased economic activity • Public economic benefits (i.e., tax payments, health savings, reduced crime, welfare savings, etc.) from increased MRC participant education • Tax revenue from increased AmeriCorps member earnings post-national service and sales tax revenue from the induced increased economic activity • Reduced spending on corrections, public assistance, and social insurance associated with increased educational attainment of AmeriCorps members post-national service 	<ul style="list-style-type: none"> • Consumer Expenditure Survey (BLS, 2018) • Federal and state income tax rates (Internal Revenue Service, 2018) • Social Security tax rate (Social Security Administration, 2018) • Medicare tax rate (SSA, 2018) • Combined state and average local sales tax rates (Tax Foundation, 2019) • Trostel (2015)

* Note: The usage of these data sources is discussed in more detail in the subsequent paragraphs. Additionally, for the state income and the combined state and average local sales tax rates used in this ROI analysis, tax rates used on MRC participants' increased earnings and on AmeriCorps members' living allowances are specific to Minnesota. Tax rates used on AmeriCorps members' increased earnings and education awards are national averages.

Additional Earnings from Increased Education (Benefit to MRC Kindergarten Participants)

Markovitz et al. (2014, 2018) found that kindergarteners who participated in the MRC randomized control trial averaged a 46 percent increase in literacy over the benchmark. Stanley et al. (2018) found that kindergarten literacy may explain approximately 36 percent of the variance in third grade oral reading fluency. Hernandez (2012) connects third grade reading scores to high school graduation rates, finding that 16 percent of non-proficient third grade readers drop out of high school, but only 4 percent of proficient third grade readers drop out of high school.

To estimate the number of kindergarteners who will no longer drop out of high school due to participation in MRC, the analysis used the number of kindergarteners in the MRC program in the 2017–2018 academic year (4,826) and multiplied it by the averaged 46 percent increase in literacy over the benchmark.¹⁴ The result is then scaled by 36 percent, representing the variance in third grade oral reading fluency that is explained by kindergarten literacy. Next, the number of students who are expected

¹⁴ Reading & Math, Inc. provided data on the number of students enrolled in MRC.

to see improved third grade oral reading fluency is multiplied by the difference in high school dropout rates by third grade reading scores (12 percent) to estimate the number of students who will no longer drop out of high school because of improved literacy due to MRC Kindergarten participation.¹⁵

To calculate expected increased earnings, the analysis then estimated the gender and race of those kindergarteners who are less likely to drop out of high school. To estimate these demographics, the study leveraged MRC's 2017–2018 academic year's demographics and Current Population Survey (CPS) data (U.S. Census Bureau, 2018) on the difference in annual median earnings for individuals with a high school degree over those without a high school degree, by race and gender. The analysis used the Consumer Price Index (CPI; U.S. Bureau of Labor Statistics, n.d.) to express the resulting dollar estimate in 2019 dollars. As the MRC Kindergarten participants are children (roughly 6 years old) at the time of the intervention, only the medium-term and long-term scenarios (which extend 15 and 30 years, respectively, from the 2017–2018 academic year) capture the benefit of increased earnings after the MRC Kindergarten participants are expected to graduate from high school.

Additional Earnings from Increased Employment (Benefit to 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). Freidman 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.¹⁶ To monetize this decrease in unemployment, the analysis first applied the 5 percentage point reduction in unemployment to the number of AmeriCorps members ages 35 or younger for MRC's 2017–2018 academic year, and then applied the product to the median annual earnings by demographic in terms of their race, gender, age, and educational attainment.¹⁷

The analysis proceeded to:

- Estimate the additional AmeriCorps members employed attributable to national service
- Estimate the annual median earnings of the AmeriCorps members by demographic
- Calculate the total earnings for AmeriCorps members attributable to the increased employment

¹⁵ For additional information, please review the *Benefits to MRC Participants* section of Appendix B.

¹⁶ See page 56 of Friedman et al. (2016).

¹⁷ Reading & Math, Inc. provided demographic data on AmeriCorps members who served during the 2017–2018 academic year.

The earnings metrics for AmeriCorps members were applied and discounted based on the short-term, medium-term, and long-term scenarios in net present 2019 dollars. The post-tax AmeriCorps members' projected earnings represents the additional income earned by AmeriCorps members attributable to their participation in national service.

Education Awards and Living Allowances (Benefits to AmeriCorps Members)

AmeriCorps members receive living allowances during their national service term and education awards after program exit. Both living allowances and education awards are taxable, so post-tax amounts were used to calculate benefits to members.

Living Allowances. AmeriCorps members use living allowances to pay for expenses during their service terms. This post-tax amount represents a direct benefit to AmeriCorps members.

Education Awards. AmeriCorps members can use education awards to a) pay for additional educational attainment and b) repay student loans. Friedman et al. (2016) studied how AmeriCorps members allocate their education awards between these eligible uses.

- **Education award used to pay for additional educational attainment.** This analysis estimated the expected increased earnings attributable to AmeriCorps members' increased educational attainment post-service as a result of using the education award to pay for additional schooling. Based on Friedman et al. (2016), the analysis estimated the amount in post-tax education awards that MRC 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. These estimated additional earnings were included as a benefit to AmeriCorps members.
- **Education award used to repay student loans.** The amount of post-tax education awards used to repay student loans, as identified by Friedman et al. (2016), was included in the ROI analysis as a direct one-time benefit to AmeriCorps members.

Tax Revenue Generation and Reduced Spending (Benefits to Government)

The benefits of MRC to program participants and AmeriCorps members also result in benefits to the various levels of government.

Benefits to the Government from Increased Educational Attainment by MRC Kindergarten Participants

Similar to the timeframe of MRC Kindergarten participants' increase in educational attainment and median annual earnings, benefits to governments are also only captured in the medium-term and long-term scenarios, not in the short-term scenario. Achievement of a high school degree increases employment opportunities and thus expected median annual earnings. Government benefits from increased educational attainment by MRC Kindergarten participants in the form of:

- **Income tax revenue from increased MRC Kindergarten participant earnings post-program.** The analysis estimated federal income tax, state income tax, Medicare, and Social Security tax for the additional earnings of MRC Kindergarten participants based on 2019 rates. For both the federal and state income tax rates, the analysis used the appropriate rate based on the estimated median annual earnings of participants, post-program participation. For the state income tax, the analysis used a rate for Minnesota, assuming that MRC Kindergarten participants continue to reside in that state over the course of their working years.
- **Sales tax revenue from the increased economic activity that results from increased MRC Kindergarten participant earnings post-program.** To estimate the additional sales tax revenue generated due to the additional net earnings, the analysis multiplied the combined state and average local sales tax rate for Minnesota by the estimated taxable expenditures to income ratio for consumers whose income falls in the expected annual earnings bracket for the MRC Kindergarten participants who are expected to achieve an increase in education and thus earnings (using the Consumer Expenditure Survey; BLS, 2018). The resulting product was then applied to the additional earnings of MRC Kindergarten participants to calculate the increase in sales tax revenue to state and local governments.
- **Reduced spending on public assistance from increased educational attainment of MRC Kindergarten participants.** As a result of increased education, those with a high school degree are expected to receive less public assistance than those without a high school degree. The analysis estimated savings to the federal government with regard to public assistance, including lifetime reduced criminal activity, lifetime welfare cost savings, lifetime public health savings, and lifetime public health costs (i.e., Medicaid, Medicare) using data provided by Levin et al. (2007).

Benefits to the Government from Increased Earnings and Educational Attainment by AmeriCorps Members

Government benefits from increased earnings and educational attainment by AmeriCorps members in the form of:

- **Income tax revenue from increased AmeriCorps member earnings post-national service.** The analysis estimated federal income tax, state income tax, Medicare, and Social Security tax for the additional earnings of AmeriCorps members based on 2019 tax rates. The analysis estimated tax rates based on the annual median earnings of the MRC AmeriCorps members' education level and demographics. The analysis used average state income tax rates for the United States, given that 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 AmeriCorps member earnings post-service.** To estimate the additional sales tax revenue generated due to the additional net earnings, the analysis multiplied the average combined state and local sales tax for the United States by the estimated taxable expenditures to income ratio for consumers whose income is similar to that of the AmeriCorps member earnings post-service (using the Consumer Expenditure

Survey; BLS, 2018). The resulting product was then applied to the additional earnings of the AmeriCorps members to calculate the increase in sales tax revenue to state and local governments.

- **Tax revenue from living allowances and education awards.** The living allowance provided to MRC AmeriCorps members during their service term is taxable. This analysis applied all the aforementioned tax rates to estimate this additional government revenue. The analysis used Minnesota state income and state sales tax rates.

Education awards are also taxable, resulting in additional government revenue. The education award is, however, subject to federal and state taxes,¹⁸ such as income, Social Security, and Medicare taxes, and these taxes were accounted for in the ROI model.¹⁹ Sales taxes were not calculated for education awards since this award amount cannot be used for consumer purchases.

- **Reduced spending on corrections, public assistance, and social insurance associated with increased educational attainment of AmeriCorps members post-service.** The last benefit related to MRC Kindergarten AmeriCorps members captured by this ROI study is the lifetime reduction in public assistance, social insurance, and corrections/incarceration spending due to the higher educational attainment of members (Trostel, 2015). Higher educational attainment is associated with less dependence on government assistance programs and lower incarceration rates (Blagg & Blom, 2018; Harlow, 2003). Because AmeriCorps participation increases educational attainment, the government spends less.

To monetize these benefits, the analysis paired the expected increase in educational attainment for AmeriCorps members with the expected difference in per-person lifetime government cost savings from Medicaid, the Supplemental Nutrition Assistance Program (SNAP), unemployment insurance, workers' compensation, and incarceration for individuals. This method conservatively calculated the savings realized by government for AmeriCorps members. Note, these benefits were only estimated for those members obtaining additional education post-service.

Costs

The costs for the MRC program used for this ROI analysis include federal and other funding used to support program operations. The costs are specific to the program participant cohort for which the outcomes are measured. Figure 3 shows the segmentation of MRC program costs by funder. The data were provided by Reading & Math, Inc. for the 2017–2018 academic year. Note that these costs represent total costs. When necessary, these costs are scaled using the ratio of kindergarteners to all students served. The AmeriCorps federal funds included the living allowances provided to participating AmeriCorps members during this service year and the educational award amounts granted to these members once they completed their service term.

¹⁸ A nationwide average rate for state income taxes is used due to the unknown location of AmeriCorps members at the time of redemption.

¹⁹ See AmeriCorps (2020b) for more on the tax implication of the AmeriCorps member education award.

Of note, while AmeriCorps is the leading funder for MRC (sponsoring nearly 50 percent of program costs), MRC’s match spending was 109 percent of federal funds for 2017–2018. This match rate suggests that federal funding catalyzes other funding sources for the MRC program, allowing it to serve more individuals and provide more services than would be otherwise be available only under the federal funds, which translates into increased benefits across stakeholder groups. The total cost of the MRC program for the 2017–2018 academic year was \$18,096,349 in 2019 dollars (Figure 3). Approximately half of MRC program costs are funded by the federal government. Funding from the state of Minnesota and private funders, plus in-kind donations by grantees, totaled \$9,433,085 or 109 percent of federal funding. An example of a grantee in-kind donation includes internal coaches who are paid by their school district but contribute a small portion of their time to support the MRC program. Note that all dollar values are shown in 2019 dollars in order to allow for a comparison of costs and benefits across time.

Figure 3. MRC Kindergarten Program Costs, K–3 by Funder Type

Funder	Funding Provided for the Program Year (2019\$)	Percent of Total (%)	Scaled Kindergarten Funding – 31% students served (2019\$)
MRC 2017-2018 Sources			
Federal	\$8,663,263	42%	\$2,664,176
State Government	\$4,904,285	24%	\$1,508,193
Private	\$722,850	3%	\$222,295
In-kind Donations	\$3,805,950	18%	\$1,170,427
MRC Subtotal	\$18,096,349	87%	\$5,565,091
AmeriCorps Educational Stipends*	\$2,708,857	13%	\$833,043
Total	\$20,805,205	100%	\$6,398,134

* Anticipated educational stipends for AmeriCorps members to be paid out following their service year.

Note: Values may not sum due to rounding.

ROI Study Limitations

There are some limitations to consider that contextualize the findings of the ROI analysis. Some of the data sources used—specifically Friedman, et al. (2016), which describes program impacts for AmeriCorps members—include data that are self-reported using surveys. Specific outcomes for the MRC AmeriCorps members were not available. Similarly, the results of Markovitz et al. (2014, 2018) yield outcomes in terms of literacy improvements, not data on employment and earnings outcomes of how MRC participation helps participants obtain additional education and employment. The study instead relies on a number of assumptions to bridge the gap between demonstrated literacy improvements and individual outcomes.

This ROI study focuses on MRC programming for kindergarteners alone. MRC also serves pre-kindergarteners, first, second, and third graders.

Lastly, the evaluation does not capture possible improvements in well-being, socio-economic status, or health of MRC participants and their families linked to the program’s effect on educational attainment. Data were not available to estimate these potential additional benefits, which may increase the program’s return.

Benefits, Costs, and ROI Results

The ROI for MRC Kindergarten measures the benefits of the program compared to its costs to determine the return to different stakeholders. This section provides estimates of benefits, costs, and the resulting ROI.

Benefits

Figure 4 shows estimates of monetized benefits of MRC Kindergarten by recipient, including MRC Kindergarten participants, AmeriCorps members, and the federal government for each scenario.²⁰ As described above, both MRC Kindergarten participants and AmeriCorps members enjoy positive future earnings impacts as a result of MRC Kindergarten. However, the data do not establish the duration of those benefits. To address a range of possible durations for those benefits, the analysis developed three scenarios: 1) short-term, assuming earnings impacts are limited to a single year; 2) medium-term, assuming earnings impacts last 15 years and diminish at a discount rate of 3 percent; and 3) long-term, assuming earnings impacts last 30 years and diminish at a discount rate of 3 percent. Again, lifetime cost savings to the various levels of governments as well as other benefits not associated with participants’ or members’ increased earnings (such as living allowances and education awards) remain constant in all three scenarios.

Figure 4. Benefits of MRC Kindergarten by Recipient

Recipient	Benefits by Scenario (2019\$)		
	Short-Term	Medium-Term	Long-Term
MRC Participants (percent of total)	\$8,753,559 (25%)	\$10,184,419 (26%)	\$14,264,049 (32%)
AmeriCorps Members (percent of total)	\$6,749,147 (19%)	\$8,310,903 (21%)	\$8,803,705 (20%)
Federal Government (percent of total)	\$19,465,664 (56%)	\$20,473,813 (53%)	\$21,679,205 (48%)
Total (total percent)	\$34,968,370 (100%)	\$38,969,135 (100%)	\$44,746,958 (100%)

Note: All benefits are proportional to the number of kindergarteners in the program.

²⁰ Benefits to MRC participants and AmeriCorps members are inclusive of their respective state and local government benefits.

Costs

Figure 5 shows MRC costs by category. Costs are presented for the full K–3 program and also for MRC Kindergarten alone. Note, all dollar values are shown in 2019 dollars to allow for a comparison of costs and benefits across time.

Figure 5. Total MRC Costs by Category

Category	Cost (2019\$)	Scaled Kindergarten Funding – 31% Students Served (2019\$)
Total AmeriCorps Member Stipend	\$6,137,673	\$1,887,492
Total Operating Costs, Less AmeriCorps Stipend	\$11,958,676	\$3,677,600
Total Expected Education Grant Value Redeemed	\$2,708,857	\$833,043
Total Costs, 2017-18 Academic Year	\$20,805,205	\$6,398,134
Total Federal Costs, 2017-18 Academic Year	\$11,372,120	\$1,887,492

Note: Values may not sum due to rounding.

ROI Results

Figure 6 shows the benefits and costs that are included in each ROI calculation.

Figure 6. Benefits and Costs Included in the ROI Calculations

ROI Calculation	Benefits (numerator)	Costs (denominator)
Total Benefits per Federal Dollar (proportional to kindergarteners)	All participant, AmeriCorps member, and government benefits derived from the program	<ul style="list-style-type: none"> Federal AmeriCorps funding
Total Benefits per Funder Dollar (proportional to kindergarteners)	All participant, AmeriCorps member, and government benefits derived from the program	<ul style="list-style-type: none"> Federal AmeriCorps funding Budgeted match funding All other funding
Federal Government Benefits per Federal Dollar (proportional to kindergarteners)	Additional tax revenue generation and reduced spending attributable to the program	<ul style="list-style-type: none"> Federal AmeriCorps funding

Figure 7 summarizes ROI results for MRC Kindergarten across the short-term, medium-term, and long-term scenarios. Three different ROI results are calculated for each scenario. Since two of the scenarios include benefits to society (MRC Kindergarten participants and AmeriCorps members), the results are expressed as cost-benefit ratios, while maintaining the ROI terminology. The ratio takes the form of the sum of monetized benefits over the sum of monetized costs. The ROI expressed as a cost-benefit ratio in this study can be interpreted as the number of dollars returned for every dollar of investment (or cost). See Appendix B for the formulas used to calculate each ROI.

Figure 7. ROI Results for MRC Kindergarten

ROI Calculation (2019\$)	ROI Scenario		
	Short-Term	Medium-Term	Long -Term
Total Benefits per Federal Dollar	\$10.11	\$11.27	\$12.94
Total Benefits per Funder Dollar	\$5.47	\$6.09	\$6.99
Federal Government Benefits per Federal Dollar	\$5.63	\$5.92	\$6.27

Under the short-term scenario for the first row of Figure 7, the ROI of total benefits divided by federal government spending is \$10.11. This indicates that MRC Kindergarten participants, AmeriCorps members, and the government realize a combined return of \$10.11 on every dollar invested by the federal government (i.e., AmeriCorps). Under the long-term scenario, MRC Kindergarten total benefits per federal dollar are \$12.94.

The second ROI calculation looked at total benefits per funder dollar, with results ranging from \$5.47 to \$6.99. The third ROI calculation looked at federal government benefits per federal dollar, with results ranging from \$5.63 to \$6.27.

Across all scenarios and all ROI calculations, this analysis demonstrates that MRC Kindergarten is an impactful use of federal funds. Leveraging AmeriCorps support, MRC Kindergarten generates benefits that are at least five times greater than costs.

Given the different assumptions of the three scenarios, benefits are larger than their associated costs across all three ROI calculations. At a minimum—when considering solely the federal government investment provided by AmeriCorps and the benefits that would be realized for the federal government alone—MRC’s programming for kindergarten still yields a positive return (as shown under the short-term scenario with an ROI of \$5.63). This indicates that given the most conservative assumptions and ROI calculation, the federal government still receives a monetary return greater than the funding allocated to pay for MRC Kindergarten’s annual operations.

The magnitude of the positive ROI calculations is driven by several factors, including:

- **The expected long-term benefits/cost savings of increased high school credential attainment for MRC kindergarteners.** Levin et al. (2007) found that the present value of lifetime federal economic benefits expected per high school graduate (increased tax payments and reduced federal spending) compared to a high school dropout ranges from \$118,000 to \$206,000, by demographics. Applying the findings from Markovitz et al. (2014, 2018), Stanley et al. (2018), and Hernandez

(2012), the MRC Kindergarten program is estimated to prevent 97 kindergarteners from becoming high school dropouts.²¹

- **The employment outcomes of AmeriCorps members.** According to the national AmeriCorps Alumni Outcomes Survey study, the percentage of members unemployed was 5 percentage points lower six months after serving in AmeriCorps versus six months before (Friedman et al., 2016).
- **The educational benefits to AmeriCorps members.** With the receipt of education awards, AmeriCorps alumni can use these funds to help pay for postsecondary degrees after exiting the program.

Recommendations for Further Research

Future ROI studies for national and community service programs, such as MRC, can be strengthened in several ways.

Recommendation 1: Document outcomes using third-party data. Using third-party data, along with or in place of self-reported data, can also improve the accuracy of AmeriCorps member outcome measurements. While self-reported data are easier to obtain, especially via survey, it has several disadvantages. Some answers may be exaggerated, respondents may not answer honestly, and response biases could affect results. Where possible, AmeriCorps programs should leverage data from third-party sources either to provide data for their program evaluation or to corroborate findings from self-reported data from previous AmeriCorps members. For example, if employment and earnings outcomes are of interest, unemployment insurance data could be used to verify wages or employment status.

Recommendation 2: Determine the persistence of short- and long-term impacts for both program participants and AmeriCorps members. Future studies of the MRC program should examine how and why the benefits of MRC intervention vary and persist across grade levels, and whether MRC participation leads to other significant benefits outside of kindergarten. This could allow for the estimation of more benefits from impacts that are currently not captured for grades one through three. The persistence of long-term impacts, such as earnings, 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, 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.

Recommendation 3: Quantify ripple effects. Earnings impacts on program participants and AmeriCorps members likely have positive benefits for those individuals' families and 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 increase the resulting ROI.

²¹ For additional information, please review the *Benefits to MRC Participants* section of Appendix B.

Conclusion

The results suggest that investment in MRC Kindergarten yields favorable impacts across a variety of stakeholder groups. Specifically, impacts are realized by MRC Kindergarten participants, AmeriCorps members, and the government. MRC Kindergarten participants benefit from improved literacy, which can lead to a reduced likelihood of dropping out of high school. A high school degree can lead to improved employment and earning outcomes. As MRC Kindergarten instructors, AmeriCorps members gain valuable work experience, preparing them for future employment or educational pursuits. In addition, the government benefits from the improved employment and earnings outcomes of MRC Kindergarten participants and AmeriCorps members. Government benefits take the form of additional tax revenue and reduced spending on public assistance, corrections, and other types of expenditures.

The results of the ROI indicate that the benefits realized by MRC Kindergarten participants, AmeriCorps members, and the government strongly outweigh the investment made by funders (e.g., federal, state, and local governments as well as other community-based organizations that provide program funding). The ROI estimates are all significantly positive. The use of short-term, medium-term, and long-term scenarios allowed for a range of estimates. Even the most conservative scenario—the short-term scenario—suggests that MRC Kindergarten delivers a large ROI.

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

Benefits

In Figure A-1, the three rightmost columns indicate by an “X” if the benefit is included in the numerator of a return on investment (ROI) calculation.

Figure A-1. Benefits Included in ROI Calculations

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased earnings due to increased educational attainment of program participants	Program participant	<ul style="list-style-type: none"> • Markovitz et al. (2014, 2018) • Stanley et al. (2018) • Hernandez (2012) • Current Population Survey (CPS) earnings (U.S. Census Bureau, 2018) • Consumer Price Index (CPI) for All Urban Consumers, Midwest region (U.S. Bureau of Labor Statistics, n.d.) 	X	X	
Increased income tax revenue due to increased earnings of program participants	Federal and state governments	<ul style="list-style-type: none"> • Markovitz et al. (2014, 2018) • Stanley et al. (2018) • Hernandez (2012) • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • Tax rate data (Social Security Administration, 2018; Tax Foundation, 2019) 	X	X	X

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased Social Security and Medicare tax revenue due to increased earnings of program participants	Federal government	<ul style="list-style-type: none"> • Markovitz et al. (2014, 2018) • Stanley et al. (2018) • Hernandez (2012) • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • SSA (2018) 	X	X	X
Increased sales tax revenue due to increased earnings of program participants	State and local governments	<ul style="list-style-type: none"> • Markovitz et al. (2014, 2018) • Stanley et al. (2018) • Hernandez (2012) • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • Tax rate data (Tax Foundation, 2019) • Consumer Expenditure Survey (BLS, 2018) 	X	X	
Lifetime reduced spending in public health, criminal activity, and welfare due to increased educational attainment of program participants	Federal government	<ul style="list-style-type: none"> • Markovitz et al. (2014, 2018) • Stanley et al. (2018) • Hernandez (2012) • Levin et al. (2007) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) 	X	X	X

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased earnings of national service members due to reduced unemployment of national service members	National service member	<ul style="list-style-type: none"> Friedman et al. (2016) CPS earnings (U.S. Census Bureau, 2018) CPI for All Urban Consumers, Midwest region (BLS, n.d.) 	X	X	
Increased income tax revenue due to reduced unemployment of national service members	Federal and state governments	<ul style="list-style-type: none"> Friedman et al. (2016) CPS earnings (U.S. Census Bureau, 2018) CPI for All Urban Consumers, Midwest region (BLS, n.d.) Tax rate data (SSA, 2018; Tax Foundation, 2019) 	X	X	X
Increased Social Security and Medicare tax revenue due to increased earnings of national service members	Federal government	<ul style="list-style-type: none"> Friedman et al. (2016) CPS earnings (U.S. Census Bureau, 2018) CPI for All Urban Consumers, Midwest region (BLS, n.d.) SSA (2018) 	X	X	X

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased sales tax revenue due to reduced unemployment of national service members	State and local governments	<ul style="list-style-type: none"> • Friedman et al. (2016) • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • Tax rate data (Tax Foundation, 2019) • Consumer Expenditure Survey (BLS, 2018) 	X	X	
Increased earnings of national service members due to educational attainment partially funded by AmeriCorps	National service member	<ul style="list-style-type: none"> • AmeriCorps (2020a) Education Award • National Center for Education Statistics (NCES, 2018) • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • Trostel (2015) 	X	X	

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
Increased income tax revenue due to educational attainment partially funded by AmeriCorps of national service members	Federal and state governments	<ul style="list-style-type: none"> • AmeriCorps (2020a) Education Award • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • NCES (2018) • Tax rate data (SSA, 2018; Tax Foundation, 2019) 	X	X	X
Increased Social Security and Medicare tax revenue due to educational attainment partially funded by AmeriCorps of national service members	Federal government	<ul style="list-style-type: none"> • AmeriCorps (2020a) Education Award • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • NCES (2018) • SSA (2018) 	X	X	X
Increased sales tax revenue due to educational attainment partially funded by AmeriCorps of national service members	State and local governments	<ul style="list-style-type: none"> • AmeriCorps (2020a) Education Award • CPS earnings (U.S. Census Bureau, 2018) • CPI for All Urban Consumers, Midwest region (BLS, n.d.) • NCES (2018) • Tax rate data (Tax Foundation, 2019) • Consumer Expenditure Survey (BLS, 2018) 	X	X	

Benefit	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
AmeriCorps member living allowances and education awards	National service member	<ul style="list-style-type: none"> AmeriCorps (2020a) Education Award Reading & Math, Inc.²² 	X	X	
Reduced spending on lifetime public assistance, corrections, and social insurance due to increased educational attainment of national service members	Federal, state, and local governments	<ul style="list-style-type: none"> Trostel (2015) CPS earnings (U.S. Census Bureau, 2018) CPI for All Urban Consumers, Midwest region (BLS, n.d.) 	X	X	X

²² Unless otherwise cited, all information provided directly by Reading & Math, Inc. for this report was received through ICF's personal communication with Reading & Math, Inc. in 2019.

Costs

In Figure A-2, the three rightmost columns indicate by an “X” if the cost is included in the denominator of an ROI calculation.

Figure A-2. Costs Included in ROI Calculations

Cost	Stakeholder Group	Data Sources	Total Benefits per Federal Dollar	Total Benefits per Funder Dollar	Federal Government Benefits per Federal Dollar
AmeriCorps costs for education awards, living allowances, and other MRC program grant funding	Federal government (AmeriCorps)	<ul style="list-style-type: none"> AmeriCorps (2020a) Education Award Reading & Math, Inc. 	X	X	X
State and local government funding	State/local government	<ul style="list-style-type: none"> Reading & Math, Inc. 		X	
Other non-government costs	Non-government funders	<ul style="list-style-type: none"> Reading & Math, Inc. 		X	

Appendix B: Additional Information on the Methodology

This appendix provides additional details on the methodology used for this study of Minnesota Reading Corps (MRC) Kindergarten, 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 analyses.

This ROI analysis evaluates the costs and benefits of MRC's kindergarten programming only, due to the results of the Markovitz et al. (2014, 2018) studies. The 2014 study evaluated 1,300 kindergarten through third grade (K–3) students, of which 359 were kindergarteners, while the 2018 study evaluated 622 K–3 students, of which 60 were kindergarteners. The 2014 study found that kindergarten, first, and third grade students who received MRC tutoring achieved statistically significant higher literacy assessment scores than students who did not. The level of magnitude was largest for kindergarteners, almost doubling the control group. Similarly, in the 2018 study, kindergarten students who received MRC tutoring achieved significantly higher letter sound fluency scores by the end of the first semester, achieving the benchmark, compared to kindergarten control students who did not participate in the program.

First, second, and third grades were excluded from this analysis for various reasons. The Markovitz et al. (2014) study did not find significant effects for second grade students, and thus the second grade was excluded. The 2014 study found that first and third grade students who received MRC tutoring achieved significantly higher literacy assessment scores than students who did not. The Markovitz et al. (2018) study found repeat results for first graders and for a pooled second and third grade group. While there were significant effects for first and third grade students, these impacts were not large enough to push an underachieving student to meet the benchmark. For example, the 2014 study found that average first grade scores achieved the winter benchmark, regardless of program involvement, and the 2018 study found that average first grade scores did not achieve the winter benchmark, regardless of program involvement. For third graders, both the 2014 and 2018 studies found that the average third grader did not achieve the winter benchmark, regardless of program involvement.

Studies of the long-term impacts of early childhood reading ability typically rely on whether or not a student has met the benchmark. While there may be benefits from improvements in reading ability for students who still fail to reach the benchmark, these benefits cannot be rigorously quantified with the data and research available. As shown in Figure B-1, kindergarteners in the 2018 study were the only grade level in which the mean scores for the treatment group achieved the benchmark and the control group did not.

Figure B-1. Summary of Benchmark Achievement by MRC Treatment and Control Groups

Grade	Statistically Significant Differences in Reading Fluency Scores – Treatment over Control		Mean Scores in Meeting/Achieving Benchmarks*, **			
	2014	2018***	2014 – C	2014 – T	2018 – C	2018 – T
K	Yes	Yes	Yes	Yes	No	Yes
1	Yes	Yes	Yes	Yes	No	No
2	No	Yes	No	No	No	No
3	Yes		No	No	No	No

Sources: Markovitz et al. (2014, 2018)

* Note: C = control group, T = treatment group

** The 2014 study uses the winter benchmark for all grades. The 2018 study uses the winter benchmark for kindergarten and first grades, and the spring benchmark for second and third grades.

*** The 2018 study pools second and third graders into one group.

The decision about which grade level or levels to include in the ROI was based on two factors:

1. **Difference in reading fluency.** If the evaluation did not demonstrate a significant difference between treatment and control groups, it would not be defensible to attribute future benefits to the program.
2. **Difference in meeting benchmarks.** Studies of the long-term impacts of early childhood reading ability rely on whether a student has met benchmarks. Therefore, stronger reading performance by treatment groups compared to control groups alone would not justify including a grade level in the ROI analysis. Grade levels would need to have a difference in whether the treatment and control groups met the benchmark as well.

Only the kindergarten group met both of these conditions.

Methodology Overview

Calculating the ROI for MRC Kindergarten included the following steps:

- Measuring and monetizing program benefits to MRC Kindergarten participants, AmeriCorps members, and the different levels of government
- 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 AmeriCorps program.

Although both MRC Kindergarten participants and AmeriCorps members experience positive benefits (described in the next section), available data do not establish how long these impacts are sustained over time. Three scenarios address a range of possible durations for those benefits:

- **Short-Term.** This scenario assumes short-term earnings impacts. The assumption is that earnings impacts are limited to a single year.
- **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 2019 dollars.²³
- **Long-Term.** This scenario assumes sustained earnings impacts throughout MRC Kindergarten participants' and AmeriCorps members' working years. The assumption is that earnings impacts last 30 years. A discount rate of 3 percent is applied to the earnings each year to represent net present value in 2019 dollars.

The only difference between the three scenarios is the length of time that increased employment and earnings are sustained; all other benefits are held constant.²⁴ Note that future employment and earnings impacts for MRC Kindergarten participants will only be captured in the medium-term and long-term scenarios because the kindergarten-age participants won't graduate high school for another 12 years.

For each ROI calculation, this analysis produced three ROI estimates corresponding to the three scenarios. (See the *ROI Calculation* section.)

Measuring Benefits

The first step in calculating the ROI for MRC Kindergarten was to measure the program benefits. As a result of MRC Kindergarten, participants, AmeriCorps members, and various levels of the government benefit. These benefits were identified through an extensive literature review and data collection process. The methods used to measure benefits for each of these stakeholders are described next.

Benefits to MRC Participants

Two evaluations by Markovitz et al. (2014, 2018) measured the impacts of the MRC program for children in kindergarten through third grade (K–3). These evaluations, conducted by the non-partisan and objective research organization NORC at the University of Chicago, included randomized control trials as well as experimental and

²³ 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).

²⁴ These three scenarios consider varying durations of how long increased employment and earnings benefits last for both MRC participants and AmeriCorps members. Certain additional benefits are included equally across these three scenarios. Specifically, lifetime benefits with regard to decreased public assistance, social insurance, and corrections costs as a result of participants' and members' higher educational attainment post-program and post-service, respectively, are represented in each of these three scenarios equally. Thus, whether participants' or members' earnings impacts are sustained for one year (i.e., short-term scenario) or 30 years (i.e., long-term scenario), the same amount of these cost savings is realized.

non-experimental analyses. The main objectives of the evaluations were to determine the impact of the MRC K–3 program on student literacy outcomes, and whether program impacts vary by participant characteristics, such as demographics. The 2014 study evaluated 1,300 K–3 students, of which 359 were kindergarteners. The 2018 study evaluated 622 K–3 students, of which 60 were kindergarteners.

Markovitz et al. (2014, 2018) found that kindergarteners averaged a roughly 46 percent increase in literacy over the benchmark. Stanley et al. (2018) found that kindergarten literacy may explain approximately 36 percent of the variance in third grade oral reading fluency. Hernandez (2012) found that 16 percent of non-proficient third grade readers drop out of high school, and only 4 percent of proficient third grade readers drop out of high school.

Applying these findings to MRC’s 4,826 kindergarteners in the 2017–2018 academic year, an estimated 97 (4,826 x 46% x 36% x (16%-4%))²⁵ kindergarteners enrolled in the MRC program are less likely to drop out of high school. This analysis assumes that a key impact of MRC is that 97 kindergarteners will no longer drop out of high school. The estimated 97 kindergarteners were then demographically weighted based on the MRC program participants’ demographics, which can be seen in Figure B-2.²⁶ To estimate the additional annual earnings attributable to increased high school graduation levels due to MRC Kindergarten, the estimated numbers of additional graduates by demographic category are multiplied by the estimated additional annual earnings.

Figure B-2. Additional High School Graduates and Expected Median Annual Additional Earnings (2019\$)

MRC Kindergarten Participants	Additional High School Graduates		Annual Additional Earnings (\$)		Total Annual Additional Earnings (\$)	
	Male	Female	Male	Female	Male	Female
White	33	34	\$11,050	\$9,763	\$368,389	\$334,790
Black	6	6	\$7,364	\$5,901	\$43,380	\$35,752
Hispanic	4	4	\$7,899	\$5,998	\$28,808	\$22,501
Other	5	5	\$10,682	\$7,994	\$51,521	\$39,661
Total	48	49	NA	NA	\$924,802	

Sources: Markovitz et al. (2014, 2018), Stanley et al. (2018), Hernandez (2012), Reading & Math, Inc., Current Population Survey (U.S. Census Bureau, 2018)

Note: Values may not sum due to rounding.

²⁵ Note: Values may not sum due to rounding.

²⁶ Unless otherwise cited, all information provided directly by Reading & Math, Inc. for this report was received through ICF’s personal communication with Reading & Math, Inc. in 2019.

Figure B-3 shows the gross earnings of the MRC Kindergarten participants for the three scenarios, discounted at a 3 percent rate.²⁷ Along with the earnings, Figure B-3 also shows the lifetime reduction in public assistance payments received due to the MRC Kindergarten participants' reduced likelihood of dropping out of high school (Levin et al., 2007). In other words, it shows the reduced spending on welfare, healthcare costs, and criminal justice costs for MRC participants due to their increased educational attainment (i.e., high school completion). This is a lifetime benefit and remains constant across the three scenarios.

Figure B-3. Additional Earnings for MRC Participants and Resulting Public Benefits by Scenario (2019\$)

Scenario	Gross Additional Earnings of MRC Participants (\$)	Reduced Public Assistance (\$)	Payroll Tax Payments* (\$)	Estimated Additional Sales Tax Revenue (\$)
Short-Term	NA	\$26,197,469	NA	NA
Medium-Term	\$1,780,785	\$26,197,469	\$475,470	\$46,457
Long-Term	\$6,858,108	\$26,197,469	\$1,831,115	\$178,912

*Note: Summed federal and state income, Medicare, and Social Security taxes based on gross earnings of MRC participants.

This analysis also calculated the federal income tax (Internal Revenue Service, 2018), state income tax (Tax Foundation, 2019), and Medicare and Social Security taxes (Social Security Administration, 2018) on the additional income.²⁸ The summation of these taxes for each of the three scenarios is shown in Figure B-3. Subtracting those taxes from the gross additional income resulting from the increased educational attainment for MRC Kindergarten participants yields post-tax income. From the post-tax income, additional sales tax revenue to the state of Minnesota (as well as local governments within the state) is estimated, assuming MRC Kindergarten participants remain in Minnesota.²⁹ These estimates are presented across the three scenarios. Note that at the time of the MRC Kindergarten program, the participants are kindergarteners and thus would not experience additional educational attainment that affects earnings until at least 12 years later. As a result, no additional earnings and resulting benefits are estimated for the short-term scenario, three years of additional earnings are estimated for the medium-term scenario, and 18 years of additional earnings are estimated for the long-term scenario.

²⁷ The guidance to use a 3 percent discount rate can be seen in Office of Management and Budget (2003).

²⁸ For the additional high school graduates, the analysis assumes a federal marginal income tax rate of 12 percent, the state income tax rate for Minnesota (7.05 percent), Medicare (1.45 percent), and Social Security (6.20 percent). The assumed Minnesota sales tax, state and local, is 7.43 percent.

²⁹ U.S. Bureau of Labor Statistics' (2018) Consumer Expenditure Survey reflects that for the income bracket of MRC participants who would benefit from additional annual earnings, their expected taxable expenditures would be 53 percent.

Benefits to AmeriCorps Members

The AmeriCorps members who provide services to the MRC participants also experience benefits due to their service. This analysis estimates these benefits:

- Living allowance and education award
- Increased earnings due to increased education derived from the education award
- A 5 percentage point reduction in unemployment due to AmeriCorps service³⁰

Note that the benefits to AmeriCorps members are presented here for the full population of members serving in the MRC program. When calculating the ROI, these benefits are scaled using the ratio of kindergarten students to all students served.

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. Regarding education awards, according to Friedman et al. (2016), a significant portion of AmeriCorps State and National alumni use them to pay for additional education at colleges, graduate schools, and technical schools, while others use them to pay off outstanding student loans.

Both the living allowances and education awards (considered one-time benefits that are not discounted or spread over time) are taxable. This analysis included the post-tax value of living allowances for the 684 MRC AmeriCorps members in the ROI analysis as AmeriCorps member benefits (Figure B-4). The benefits derived from education awards are described in detail next. When calculating the ROI, these benefits are scaled using the ratio of kindergarteners to total students served by the MRC program.

Figure B-4. Additional AmeriCorps Member Benefits

Benefit	Post-Tax Value ³¹ (2019\$)	Notes
Living Allowance (net)	\$4,726,008	Post-tax living allowances members receive during service
Education Award (net) Used for Schooling	\$2,085,820	Post-tax education award amount, assumed used to pay for schooling (college, technical training program, loans, etc.)
Total	\$6,811,828	

Sources: Reading & Math, Inc., tax rates (IRS, 2018; SSA, 2018; Tax Foundation, 2019), AmeriCorps (2020a)

³⁰ According to Friedman et al. (2016), the percentage of members unemployed was 5 percentage points lower six months after serving in AmeriCorps than six months before.

³¹ Refer to the *Benefits to Government* section regarding taxation assumptions.

Increased Earnings due to Increased Education Derived from the Education Award

The AmeriCorps Education Award pays for some portion of member educational attainment, and the future earnings derived from the educational attainment is treated as a direct benefit to AmeriCorps members. This analysis used tuition cost data from the National Center for Education Statistics (NCES, 2018) to calculate the portion of member educational attainment that is attributable to MRC. Figure B-5 details the average total cost of tuition for each degree type from NCES (2018) and the portion of that cost that the \$6,195³² education award (\$4,574 after taxes) amount represents. These percentages were used to estimate the lifetime benefits of educational attainment that can be attributed to the education award. For example, according to NCES (2018), the average annual cost of a public, in-state, four-year academic institution during the 2017–2018 academic year was \$20,050, which amounts to over \$80,000 for four years. The \$4,574 post-tax education award only represents 6 percent of the cost of that degree so, accordingly, AmeriCorps is only credited that percentage of the lifetime benefits of an AmeriCorps member’s bachelor’s degree. The same percentage is calculated for each degree type to estimate the portion of the lifetime benefits for each that is credited to AmeriCorps.

Figure B-5. Average Total Cost of Education by Degree

Degree Type	Cost (2019\$)	Percent of Degree Tuition Covered by Education Award (%)
Associate/Technical Degree	\$6,709	68%
Bachelor’s Degree	\$82,957	6%
Graduate Degree ³³	\$24,672	19%

Source: NCES (2018)

The survey of AmeriCorps alumni (Friedman et al., 2016) provided the percentage of members planning to use the education award to attend a vocational/technical school (2 percent), college (21 percent), or graduate school (23 percent) post-service.³⁴ 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 MRC AmeriCorps members who

³² The education award takes into account whether the AmeriCorps members were full- or part-time and were engaged over a full program year or an academic year. In addition, the analysis adjusts the value of education awards to dollars in the period studied. For those reasons, education award benefits per person may differ across national service programs.

³³ Assumes a two-year program.

³⁴ Friedman et al. (2016) found that 79% of members planned on using the education award to repay student loans or to pursue additional education.

served during the most recent program year are distributed by the type of degree members plan to attain post-service, as shown in Figure B-6. Then, the difference in the additional lifetime earnings from one degree type to the subsequent degree type is estimated using data provided by Trostel (2015), which is shown in the fourth column of Figure B-6 and expressed in 2019 dollars. For instance, Trostel (2015) calculated that the lifetime earnings of someone with an associate degree is about \$863,000, while that for someone with a bachelor’s degree is over \$1.275 million.³⁵ The difference between these two metrics (roughly \$411,000) represents the additional lifetime earnings realized as a result of gaining a bachelor’s degree if an associate degree was already completed. This increase in income is then reduced by the percent of the degree tuition that can be paid using the education award, such that MRC is only credited for the percentage of the benefits equal to the percentage of tuition that the education award pays for. This process was completed for three postsecondary degree types to conservatively estimate the additional lifetime earnings realized by MRC AmeriCorps members due to an increase in educational attainment.

Next, this amount is applied to the 2019 additional lifetime earnings by degree type to calculate the additional lifetime earnings realized by AmeriCorps members from their increase in educational attainment that is credited to the use of the education award post-service. As noted in Figure B-6, this lifetime earnings amount is roughly \$14.1 million across all MRC AmeriCorps members who served in the most recent program year. Of note, these lifetime earnings are those *in addition to* the earnings derived from MRC AmeriCorps members’ gains in employment as delineated in the subsequent section. While the earnings from AmeriCorps members’ increased employment differs depending on the scenario (i.e., short-term, medium-term, and long-term), the lifetime earnings calculated in Figure B-6 are constant across all three scenarios.

Figure B-6. Additional Earnings from AmeriCorps Members’ Use of the Education Award (2019\$)

Degree Type	Number of MRC AmeriCorps Members	Percent of Degree Tuition Covered by Education Award (%)	2019 Additional Lifetime Earnings over Previous Educational Step (\$) *	Additional Lifetime Earnings from Education Award (\$)
Associate Degree	11.1	68%	\$101,437	\$765,534
Bachelor’s Degree	116.2	6%	\$411,400	\$2,636,472
Graduate Degree	127.3	19%	\$455,221	\$10,743,334
Total	254.6			\$14,145,340

Sources: Reading & Math, Inc., Trostel (2015)

³⁵ These amounts were converted to 2019 dollars.

* Note: This value is the difference of lifetime earnings over the prior degree type (e.g., one with a graduate degree can expect to earn \$455,221 more over a lifetime than with a bachelor's degree).

The improved educational outcomes realized by MRC Kindergarten participants and AmeriCorps members also generate benefits to the various levels of government in the form of tax revenue generation and cost savings in public assistance, corrections, and other forms of government support. A variety of taxes and their associated rates are applied to MRC Kindergarten participants' and AmeriCorps members' earnings, as well as to their estimated spending to determine tax revenue generation. Of note, only the difference in cumulative median net earnings for MRC participants and AmeriCorps members is used to calculate government benefits in increased tax revenue. Again, this difference in cumulative median net earnings for each of these two groups represents the increased earnings solely attributable to MRC Kindergarten; thus, the government taxes derived from these earnings amounts would also be solely attributable to the program. Note that these benefits are only estimated for the estimated 46 percent of members who use the education award for additional education post-service.

Additionally, the survey of AmeriCorps members in Friedman et al. (2016) found that 33 percent of members planned to use their education award to pay back student loans. Assuming members planned to make payments on their student loans, the education award represents an increase in income via a reduction in out-of-pocket student loan payments. The number of full-time members (where two half-time members are equal to one full-time member) in the most recent MRC service year was calculated and then multiplied by 33 percent to identify the estimated number of members using the education award in this fashion. Next, this value was multiplied by the value of the post-tax education award to calculate the total savings to AmeriCorps members. Again, the state and local and federal taxes paid due to the receipt of the education award are included as benefits to the respective levels of government. However, cost savings in the form of public assistance, corrections, and other forms of government support are not included for the subset of AmeriCorps members using the education award to pay back student loans.

Reduction in Unemployment due to AmeriCorps Service

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. Friedman et al. (2016) did not provide actual employment rates for AmeriCorps members pre- and post-service, but rather provided the change in unemployment rates—a 5 percentage point decrease. However, MRC AmeriCorps members were older, on average, than the AmeriCorps group included in the Friedman study. More than 10 percent of MRC AmeriCorps members were over 65. It is likely that a higher proportion of MRC AmeriCorps members are midway in their careers or already retired, so it would not be reasonable to assume a 5 percentage point change in employment for all MRC AmeriCorps members. To be conservative, the analysis assumed that only those under the age of 35 will use their experience at MRC to further their career goals. Due to the conservative assumption, this may underestimate benefits. Figure B-7 shows the results of applying the 5 percentage point

reduction in unemployment weighted by race, gender, and educational attainment of the MRC AmeriCorps member. The analysis estimated the earnings of AmeriCorps members as a result of their increased employment using educational attainment data from the Zeidenberg et al. (2016) study.

Figure B-7. Additional Number Employed and Annual Median Earnings for AmeriCorps Members

AmeriCorps Members	Number of MRC AmeriCorps Members Age 35 or Younger	Percentage Point Increase in AmeriCorps Members' Employment (%)	Number of Members with Increased Earnings Attributable to AmeriCorps	Weighted Median Gross Annual Individual Earnings (2019\$)	Weighted Median Gross Annual Total Earnings (2019\$)*
	[A]	[B]	[C] = [A] x [B]	[D]	[E] = [C] x [D]
AmeriCorps Members	318	5%	15.9	\$52,457	\$833,962

Sources: Zeidenberg et al. (2016), Friedman et al. (2016), U.S. Census Bureau (2018)

* Note: Median net annual earnings excludes payroll taxes paid on earnings (i.e., federal and state income, Social Security, and Medicare taxes).

Figure B-8 shows the cumulative median net earnings for the additional AmeriCorps members employed for the three different scenarios (i.e., short-term, medium-term, and long-term). These post-tax (or net) monetary amounts represent the additional earnings realized due to the AmeriCorps members serving in MRC whose employment is solely attributed to the program.

Figure B-8. Cumulative Median Net Earnings for AmeriCorps Members Whose Employment Is Attributable to AmeriCorps Participation, Age 35 and Younger, by Scenario

Scenario	Cumulative Median Net Earnings (2019\$)
Short-Term	\$517,151
Medium-Term	\$5,128,466
Long-Term	\$6,583,535

Sources: Zeidenberg et al. (2016), Reading & Math, Inc., U.S. Census Bureau (2018)

Benefits to Government

State and Local Government

State and local government benefits from MRC Kindergarten are realized through the generation of additional state income tax revenue, state and local sales tax revenue, and reduced spending on social insurance and corrections due to the increased educational attainment of AmeriCorps members post-service.

State Income Tax Revenue: To measure income tax revenue generation for state government (any local income taxes are not included), the additional gross median earnings of MRC Kindergarten participants and AmeriCorps members that are solely attributed to the MRC program are taxed by a state income tax rate. For MRC Kindergarten participants' additional gross median earnings, the 2019 Minnesota state income tax rate is used (7.05 percent), while for AmeriCorps members' gross median earnings, the nationwide average 2019 state income tax rate across the U.S. is used (4.8 percent; Tax Foundation, 2019). See Figure B-9.

Figure B-9. Annual Additional State Income Tax Revenue

Group	Total Annual Additional Earnings (2019\$)	State Income Tax Rate* (%)	Annual Additional State Income Tax Revenue (2019\$)
MRC Participants	\$924,802	7.05%	\$65,199
AmeriCorps Members	\$833,869	4.8%	\$39,984

*Minnesota tax rate for MRC participants; average U.S. state income tax rate for AmeriCorps members (Tax Foundation, 2019).

State and Local Sales Tax Revenue: To measure sales tax revenue generation for state and local governments, the amount of MRC Kindergarten participants' and AmeriCorps members' additional median *net* earnings that are spent on taxable goods is taxed by a sales tax rate. For MRC Kindergarten program participants, the summation of the 2019 Minnesota state sales tax rate (6.9 percent) and Minnesota's average local sales tax rate (0.5 percent) is used, amounting to 7.4 percent (Tax Foundation, 2019). For AmeriCorps members, the nationwide average 2019 combined state and local average sales tax rate across the U.S. (6.5 percent) is used.

To estimate the amount of MRC Kindergarten participants' and AmeriCorps members' median earnings that is spent on taxable goods, data from the Consumer Expenditure Survey are used (BLS, 2018). These data show the amount of spending on a number of different goods and services by national consumers across several different income brackets. 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 earnings of the MRC Kindergarten participants and AmeriCorps members; for MRC Kindergarten participants this proportion is 42 percent, while for AmeriCorps members it's 28 percent. The difference is a result of the different income brackets MRC Kindergarten participants and AmeriCorps members fall into. These proportions are then applied to MRC Kindergarten participants' and AmeriCorps

members’ median net earnings to calculate the post-tax monetary amount they spend on taxable goods, and sales tax rates are applied accordingly to estimate the resulting sales tax revenues.

Figure B-10 details this process for MRC Kindergarten participants. The same process was used to calculate the additional state and local sales tax revenue generated by additional earnings and likelihood of employment for AmeriCorps members. However, the annual additional earnings and taxable spending rate are allowed to vary by the estimated educational attainment levels of AmeriCorps members. In the case of MRC Kindergarten participants, all of the benefits are derived only from graduating high school.

Figure B-10. Additional State and Local Sales Tax Revenue, MRC Kindergarten Participants

MRC Participants	Total Annual Additional Earnings (2019\$)		Taxable Spending Rate (%)		Total Annual Taxable Spending (2019\$)	
	Male	Female	Male	Female	Male	Female
Race/Ethnicity						
White	\$368,389	\$334,790	43%	53%	\$157,526	\$176,587
Black	\$43,380	\$35,752	53%	53%	\$22,881	\$18,858
Hispanic	\$28,808	\$22,501	43%	53%	\$12,319	\$11,868
Other	\$51,521	\$39,661	43%	53%	\$22,031	\$20,919
Total Taxable Income Spending					\$442,988	
Total Taxable Income Less Income Taxes³⁶					\$324,710	
Total Annual State and Local Taxes³⁷					\$24,126	

Note: Values may not sum due to rounding.

State and Local Government Cost Savings: State and local governments also benefit from MRC through lifetime savings in social insurance and corrections—as reported in Trostel (2015)—due to the increase in AmeriCorps members’ educational attainment after program exit. Of note, social insurance includes unemployment insurance compensation and workers’ compensation. To conservatively calculate these lifetime non-federal government savings, the pre-national service education levels of AmeriCorps members are first compared to their post-national service education levels. This determines the change in lifetime costs (and thus savings) in corrections and social insurance based on the differences in education levels among MRC AmeriCorps members (see Figure B-11). To determine what portion of this differential represents lifetime savings to state or local governments versus the federal government, a different method is employed for each of these cost savings areas. For social insurance,

³⁶ Income taxes include an estimated 12 percent federal income tax, a 7.65 percent tax for Social Security and Medicare, and a 7.05 percent state and local income tax.

³⁷ Assumes 6.9 percent state sales tax rate and 0.5 percent local sales tax rate.

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 is determined based on the U.S. incarcerated population in 2019. Specifically, the number of individuals housed in federal government institutions (9.7 percent) versus state and local facilities (90.3 percent) was used to divide up these savings (Sawyer & Wagner, 2019). Therefore, over 90 percent of the lifetime cost savings in corrections, due to AmeriCorps members experiencing an increase in educational attainment pre- to post-national service, is allocated to state and local governments.

Figure B-11. 2018 State and Local Government Cost Savings

Educational Attainment Attained	AmeriCorps Members Using Education Award	Lifetime Unemployment Insurance Savings (2019\$)	Lifetime Workers' Comp. Savings (2019\$)	Lifetime Incarceration Savings (2019\$)	Total State and Local Government Savings (2019\$)
Associate Degree	11.1	\$667	\$3,962	\$0	\$4,629
Bachelor's Degree	116.2	\$6,332	\$3,364	\$17,996	\$27,692
Graduate Degree	127.3	\$14,599	(\$212)	\$10,757	\$25,144

Source: Trostel (2015)

Note: Values may not sum due to rounding.

Federal Government

The federal government benefits from MRC Kindergarten in terms of increased tax revenue (e.g., federal income, Social Security, and Medicare taxes) from MRC participants' and AmeriCorps members' increased additional earnings. It also realizes benefits in the form of cost savings in public assistance, social insurance, and corrections expenditures due to MRC Kindergarten participants' improved employment and AmeriCorps members' increased educational attainment post-service.

Federal Income Tax Revenue: To measure federal income tax revenue, the additional median gross earnings of MRC Kindergarten participants and AmeriCorps members that are solely attributed to the MRC Kindergarten program are taxed by a federal income tax rate, based on the estimated median gross annual earnings of MRC Kindergarten participants and AmeriCorps members. For MRC Kindergarten participants, the 2019 federal income tax rate is 12 percent, while for AmeriCorps members the rate used is 22 percent. The difference in the federal income tax rates stems from their earnings amounts after participating or serving in the MRC Kindergarten program, which are associated with different federal income tax brackets.

Figure B-12. 2018 Annual Additional Federal Income Tax Revenue

Group	Total Annual Additional Earnings (2019\$)	Marginal Federal Income Tax Rate*	Annual Additional Federal Income Tax Revenue (2019\$)
MRC Kindergarten Participants	\$924,802	12%	\$110,976
AmeriCorps Members	\$833,869	22%	\$183,451

*Source: IRS (2018)

Note: Values may not sum due to rounding.

Social Security and Medicare Tax Revenue: Social Security and Medicare tax revenue are measured in the same way as the federal income tax but using tax rates specific to each revenue source. Social Security and Medicare use flat tax rates, 6.2 percent and 1.45 percent, respectively; thus, these rates are applied to the additional median gross earnings for both MRC Kindergarten participants and AmeriCorps members to calculate the amount of revenue the federal government receives.

Figure B-13. 2018 Annual Additional State Income Tax Revenue

Group	Total Annual Additional Earnings (2019\$)	Social Security and Medicare Tax Rate	Annual Additional Social Security and Medicare Tax Revenue (2019\$)
MRC Participants	\$924,802	7.65%	\$70,747
AmeriCorps Members	\$833,869	7.65%	\$63,791

Note: Values may not sum due to rounding.

Federal Government Cost Savings: The federal government realizes cost savings in public assistance, social insurance, and corrections due to the improved employment (and thus increased earnings) of MRC Kindergarten participants as well as the increased educational attainment of AmeriCorps members after program exit. In this ROI analysis, reductions in public assistance, social insurance, and corrections costs are realized for AmeriCorps members, but only reductions in public assistance payments are realized for MRC Kindergarten participants; this is because educational attainment data for MRC Kindergarten participants were not provided to use the same proxies from the Trostel (2015) study as was used for the AmeriCorps members. Thus, though both groups experience benefits from the MRC Kindergarten program that result in decreases in federal government costs, the sources and methodology used for each group slightly differs due to data availability.

To estimate the savings in public assistance spending that resulted from the employment gains of MRC Kindergarten participants post-program participation, data from the Consumer Expenditure Survey (specifically for the Midwestern region, which is where Minnesota is located) are used (BLS, 2018). Figure B-14 shows the amount of

income households receive from the federal government in public assistance (e.g., Temporary Assistance for Needy Families, or TANF; Supplemental Nutrition Assistance Program, or SNAP; Supplemental Security Income, or SSI; etc.) by income bracket.

Figure B-14. 2018 Average Annual Public Assistance Payments by Income Range for Midwestern Region (2018\$)

Payment Source	Less than \$15,000 (\$)	\$15,000 to \$29,999 (\$)	\$30,000 to \$39,999 (\$)	\$40,000 to \$49,999 (\$)	\$50,000 to \$69,999 (\$)	\$70,000 to \$99,999 (\$)	\$100,000 to \$149,999 (\$)	\$150,000 to \$199,999 (\$)	\$200,000 and more (\$)
Public Assistance (TANF, SNAP, SSI, etc.)	\$1,119	\$746	\$542	\$374	\$242	\$108	\$145	\$36	\$32

Source: Consumer Expenditure Survey (BLS, 2018)

In addition to the fiscal cost savings derived from the improved employment and earnings of MRC Kindergarten participants, the federal government also spends less on AmeriCorps members after the completion of their terms of national service. Using the findings of Trostel (2015), which were referenced earlier in this section, the increased educational attainment that AmeriCorps members achieve after national service was used to estimate the federal government portion of lifetime cost savings on social insurance (which is comprised of workers' compensation and unemployment insurance compensation, as noted earlier), public assistance (e.g., SNAP, Medicaid, TANF, etc.), and corrections. Figure B-15 shows the lifetime costs to the federal versus to the state and local government for each of these areas—where applicable—by education level. To conservatively calculate the federal government's lifetime savings (Figure B-16), the pre-national service education levels of AmeriCorps members are first compared to their post-national service education levels. The differences between the public assistance, federal social insurance, and federal corrections costs for the pre- versus post-service education levels represent the cost savings realized by the federal government due to the increased educational attainment level of an AmeriCorps member. 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 compensation (Oswald, 2018), which is part of social insurance, and almost 10 percent of the lifetime cost savings in corrections (Sawyer & Wagner, 2019).

Figure B-15. Benefits to Government of Increased Educational Attainment Level per Individual's Lifetime (2019\$)

Source of Government Saving	High School Diploma (\$)	Associate Degree (\$)	Bachelor's Degree (\$)	Graduate Degree (\$)
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	\$822	\$393	\$115	\$70
State/Local	\$7,666	\$3,662	\$1,075	\$655
Total	\$72,227	\$44,067	\$21,533	\$14,851

Sources: Trostel (2015), Sawyer and Wagner (2019)

Figure B-16. 2018 Federal Government Cost Savings

Educational Level Attained	AmeriCorps Members Using Education Award	Lifetime Unemployment Insurance Savings (2019\$)	Lifetime Incarceration Savings (2019\$)	Total Federal Government Savings (2019\$)
Associate Degree	11.1	\$667	\$0	\$667
Bachelor's Degree	116.2	\$6,332	\$301	\$6,633
Graduate Degree	127.3	\$14,599	\$49	\$14,648

Source: Trostel (2015)

Note: Values may not sum due to rounding.

Additional Government Benefits

Increased Federal Income and State and Local Tax Receipts due to a 5 Percentage Point Reduction in Unemployment Associated with AmeriCorps Service

The analysis estimates AmeriCorps members' net earnings due to the 5 percentage point decrease in unemployment associated with the AmeriCorps member demographics (in terms of gender, age, race/ethnicity, and educational attainment level) of those who served during the most recent program year (Friedman et al., 2016). Based on the segmentation of these population characteristics, the analysis estimated the number of AmeriCorps members who would gain employment due to the reduced

unemployment program benefit. The annual median earnings for the demographic multiplied by the estimated number of additionally employed individuals yields an estimated annual increase in earnings resulting from the reduction in unemployment due to AmeriCorps service.

Figure B-17 shows the additional earnings of AmeriCorps members; the federal and state income, Medicare, and Social Security taxes on the additional income;³⁸ and additional sales tax revenue,³⁹ similar to the estimation of the additional MRC Kindergarten participants' income.

Figure B-17. Additional Earnings for MRC AmeriCorps Members and Resulting Public Benefits by Scenario (2019\$)

Scenario	Gross Additional Earnings of MRC AmeriCorps Members (2019\$)*	Income Tax Payments (2019\$)**	Estimated Additional Sales Tax Revenue (2019\$)
Short-Term	\$809,581	\$278,861	\$13,570
Medium-Term	\$8,028,430	\$2,765,395	\$134,568
Long-Term	\$10,306,287	\$3,550,004	\$172,748

* Note: Annual earnings estimated in Figure B-13

** Note: Summed federal and state income, Medicare, and Social Security taxes.

Summary of Benefits to Government

Figure B-18 shows the amount of tax revenue generated and savings in expenditures for state and local versus the federal government that are solely credited to the MRC program's portion attributable to kindergarten in Minnesota and calculated using the methods described above. The data are broken out by MRC Kindergarten participants and their AmeriCorps members, for each of the three scenarios. These government revenues and savings amounts are benefits that are included in the three ROI calculations.

³⁸ For the increase in employment of AmeriCorps members, the analysis assumes a federal marginal income tax rate of 22 percent, an average of all 50 states' income taxes (4.8 percent), Medicare (1.45 percent), and Social Security (6.20 percent). The assumed Minnesota sales tax, state and local, is 7.43 percent.

³⁹ The average state and local sales tax across the U.S. is estimated to be 6.52 percent.

Figure B-18. State/Local and Federal Government Benefits by Stakeholder Group and by Scenario, Proportional to MRC Kindergarteners

Revenue Source by Stakeholder	Benefit (2019\$)		
	Short-Term	Medium-Term	Long-Term
MRC Kindergartener-Derived Benefits			
State/Local Government Benefits	\$8,753,559	\$8,925,561	\$9,415,968
State Income Tax Revenue from Employment (Assumed Minnesota state income tax rate bracket: 7.05%)	\$0	\$125,545	\$483,497
State and Local Sales Tax Revenue from Employment (Minnesota state and local tax rate: 7.4%)	\$0	\$46,457	\$178,912
Non-federal Savings Public Economic Benefits (including tax payments, health savings, reduced crime, welfare savings) from Educational Attainment (Lifetime)	\$8,753,559	\$8,753,559	\$8,753,559
Federal Government Benefits	\$17,443,910	\$17,793,834	\$18,791,528
Federal Income Tax Revenue from Employment (Assumes the marginal earnings are federally taxed at an average rate of 12.0%)	\$0	\$213,694	\$822,973
Social Security & Medicare Tax Revenue from Employment (Federal Social Security tax rate: 6.2%) (Federal Medicare tax rate: 1.45%)	\$0	\$136,230	\$524,645
Federal Savings in Reduced Social Insurance and Corrections Spending from Educational Attainment (Lifetime)	\$17,443,910	\$17,443,910	\$17,443,910
AmeriCorps Members-Derived Benefits; Proportional to MRC Kindergarteners			
State/Local Government Benefits	\$637,758	\$781,417	\$826,747
State Income Tax Revenue from Living Allowances and Education Awards* (Assumed Minnesota state tax bracket: 5.35%)	\$145,549	\$145,549	\$145,549
State and Local Sales Tax Revenue from Living Allowances* (Average Minnesota state and local tax rate: 7.43%)	\$107,985	\$107,985	\$107,985
State Income Tax Revenue from Reduced Unemployment (Average state tax rate for assumed marginal incomes: 4.8%)	\$11,938	\$118,387	\$151,976
State and Local Sales Tax Revenue from Reduced Unemployment (Average state and local tax rate: 6.5%)	\$4,173	\$41,383	\$53,125
State Income, Sales, and Property Taxes from Educational Attainment (Lifetime)**	\$350,441	\$350,441	\$350,441
Savings in Reduced Social Insurance and Corrections Spending from Educational Attainment (Lifetime)**	\$17,672	\$17,672	\$17,672

Revenue Source by Stakeholder	Benefit (2019\$)		
	Short-Term	Medium-Term	Long-Term
Federal Government Benefits	\$2,021,754	\$2,679,978	\$2,887,677
Federal Income Tax Revenue from Living Allowances and Education Awards* (Assumed federal income tax rate: 10.0%)	\$272,053	\$272,053	\$272,053
Social Security and Medicare Tax Revenue from Living Allowances and Education Awards* (Federal Social Security tax rate: 6.2%) (Federal Medicare tax rate: 1.45%)	\$208,121	\$208,121	\$208,121
Federal Income Tax Revenue from Reduced Unemployment (Federal income tax rate: 22.0%)	\$54,773	\$543,169	\$697,278
Social Security and Medicare Tax Revenue from Reduced Unemployment (Federal Social Security tax rate: 6.2%) (Federal Medicare tax rate: 1.45%)	\$19,046	\$188,875	\$242,463
Federal Income Tax Revenue from Educational Attainment (Lifetime)**	\$868,244	\$868,244	\$868,244
Social Security Tax Revenue from Educational Attainment (Lifetime)**	\$509,131	\$509,131	\$509,131
Savings in Reduced Social Insurance, Corrections, and Public Assistance Spending from Employment (Lifetime)**	\$90,386	\$90,386	\$90,386
Total	\$28,856,981	\$30,180,790	\$31,921,920

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

** Applies only to those AmeriCorps members expected to pursue additional education post-service.

The federal and non-federal government estimates of reduced lifetime social insurance, corrections, and public assistance spending as well increased lifetime taxes due to increased education do not vary across the three scenarios (i.e., short-term, medium-term, and long-term) because they are not dependent on how long the increased employment and associated earnings are sustained. Rather, they are derived from increased educational attainment and that is a lifetime present value.

Measuring Costs

The analysis' treatment of costs is discussed on page 12.

ROI Calculation

The analysis calculated three different ROI results for each scenario. Since two of the ROI calculations include benefits to society (program participants and AmeriCorps members), the results are expressed as a cost-benefit ratio, while maintaining ROI

terminology.⁴⁰ The ROI (or cost–benefit ratio) in this study can be interpreted as the amount of dollars returned for every \$1 of investment (or cost).

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

$$\begin{array}{l} \text{Total} \\ \text{Benefits} \\ \text{per} \\ \text{Federal} \\ \text{Dollar} \end{array} = \frac{\text{Benefits to MRC Participants} + \text{Benefits to AmeriCorps Members} + \text{Benefits to the Government}}{\text{Federal (AmeriCorps) Funding}}$$

$$\begin{array}{l} \text{Total} \\ \text{Benefits} \\ \text{per} \\ \text{Funder} \\ \text{Dollar} \end{array} = \frac{\text{Benefits to MRC Participants} + \text{Benefits to AmeriCorps Members} + \text{Benefits to the Government}}{\text{Federal (AmeriCorps) Funding} + \text{Required Match Funding} + \text{Other Funding}}$$

$$\begin{array}{l} \text{Federal} \\ \text{Government} \\ \text{Benefits per} \\ \text{Federal} \\ \text{Dollar} \end{array} = \frac{\text{Benefits to the Federal Government}}{\text{Federal (AmeriCorps) Funding}}$$

Figures B-19, B-20, and B-21 show the total benefits, costs, and ROI results for each scenario.

Figure B-19. ROI Calculations for Short-Term Scenario (2019\$)

Benefits / Costs	Total Benefits per Federal Dollar (\$)	Total Benefits per Funder Dollar (\$)	Federal Government Benefits per Federal Dollar (\$)
Total Benefits	\$34,968,370	\$34,968,370	\$19,465,664
Total Costs	\$3,458,160	\$6,398,134	\$3,458,160
Result	\$10.11	\$5.47	\$5.63

⁴⁰ ROI's are often expressed as percentages when measuring the financial return to a single entity from that entity's investment. Although this is consistent with one of the three ROI metrics reported (Government Revenue/Savings per Federal Dollar), since the other ROIs lend themselves to a cost–benefit ratio, that ratio is used for all three metrics.

Figure B-20. ROI Calculations for Medium-Term Scenario (2019\$)

Benefits / Costs	Total Benefits per Federal Dollar (\$)	Total Benefits per Funder Dollar (\$)	Federal Government Benefits per Federal Dollar (\$)
Total Benefits	\$38,969,135	\$38,969,135	\$20,473,813
Total Costs	\$3,458,160	\$6,398,134	\$3,458,160
Result	\$11.27	\$6.09	\$5.92

Figure B-21. ROI Calculations for Long-Term Scenario (2019\$)

Benefits / Costs	Total Benefits per Federal Dollar (\$)	Total Benefits per Funder Dollar (\$)	Federal Government Benefits per Federal Dollar (\$)
Total Benefits	\$44,746,958	\$44,746,958	\$21,679,205
Total Costs	\$3,458,160	\$6,398,134	\$3,458,160
Result	\$12.94	\$6.99	\$6.27

References

- AmeriCorps (formerly Corporation for National and Community Service). (2020a). *Amount, eligibility, and limitations*. <https://www.nationalservice.gov/programs/americorps/segal-american-education-award/amount-eligibility-and>
- AmeriCorps (formerly Corporation for National and Community Service). (2020b). *Tax implications*. <https://www.nationalservice.gov/programs/americorps/segal-american-education-award/tax-implications>
- Blagg, K., & Blom, E. (2018, September). *Evaluating the return on investment in higher education: An assessment of individual- and state-level returns*. Urban Institute. https://www.urban.org/sites/default/files/publication/99078/evaluating_the_return_on_investment_in_higher_education.pdf
- Friedman, E., Freeman, B., Phillips, B., Rosenthal, L., Robinson, D., Miller, H., & Porowski, A. (2016). *AmeriCorps alumni outcomes: Final survey technical report*. Corporation for National and Community Service (now AmeriCorps). https://www.nationalservice.gov/sites/default/files/evidenceexchange/FR_AmeriCorpsAlumniOutcomesFinalTechReport.pdf
- Harlow, C. (2003, April 15). *Bureau of Justice Statistics special report: Education and correctional populations*. U.S. Department of Justice, Office of Justice Programs. <https://www.bjs.gov/content/pub/pdf/ecp.pdf>
- Hernandez, D. J. (2012). *Double jeopardy: How third-grade reading skills and poverty influence high school graduation*. The Annie E. Casey Foundation. <https://www.aecf.org/resources/double-jeopardy>
- Internal Revenue Service. (2018). *IRS provides tax inflation adjustments for tax year 2019*. <https://www.irs.gov/newsroom/irs-provides-tax-inflation-adjustments-for-tax-year-2019>
- Levin, H., Belfield, C., Muennig, P., & Rouse, C. (2007). *The costs and benefits of an excellent education for all of America's children*. Columbia University Libraries. <https://academiccommons.columbia.edu/doi/10.7916/D8CF9QG9>
- Markovitz, C., Hernandez, M., Hedberg, E., & Silbergliitt, B. (2014). *Outcome evaluation of the Minnesota Reading Corps K3 Program*. NORC at the University of Chicago. <https://www.norc.org/Research/Projects/Pages/outcome-evaluation-of-the-minnesota-reading-corps-prek-program.aspx>
- Markovitz, C., Hernandez, M., Hedberg, E., Whitmore, H., & Satorius, J. (2018, September). *Impact evaluation of the Minnesota Reading Corps K-3 Program (2017-18)*. NORC at the University of Chicago. <https://www.serveminnesota.org/wp-content/uploads/2019/10/Minnesota-Reading-Corps-2017-2018-Evaluation.pdf>

- Markovitz, C., Schneider, G., Jastrzab, J. A., & Frumkin, P. (2008, April). *Improving lives and communities: Perspectives on 40 years of VISTA service*. Corporation for National and Community Service (now AmeriCorps).
https://www.nationalservice.gov/sites/default/files/evidenceexchange/FR_Imprv_LivesComm_40YrsVISTASvc_2008.pdf
- Minnesota Reading Corps. (2019a). *A proven approach: Why it works*.
<https://minnesotareadingcorps.org/the-approach/>
- Minnesota Reading Corps. (2019b). *Getting kids back on track! Our results*.
<https://minnesotareadingcorps.org/our-results/>
- National Center for Education Statistics. (2018, November). *Digest of education statistics. Table 330.20. Average undergraduate tuition and fees and room and board rates charged for full-time students in degree-granting postsecondary institutions, by control and level of institution and state or jurisdiction: 2016-17 and 2017-18*. https://nces.ed.gov/programs/digest/d18/tables/dt18_330.20.asp
- Office of Management and Budget. (1992, October 29). *Circular A-94: Guidelines and discount rates for benefit–cost analysis of federal programs*, Transmittal Memo No. 64.
<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A94/a094.pdf>
- Office of Management and Budget. (2003, September 17). *Circular A-4*.
<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>
- Oswald, J. (2018, March 29). *What does an unemployment claim cost an employer?* Unemployment Insurance Services. <https://www.unemployment-services.com/unemployment-claim-cost-employer/>
- Sawyer, W., & Wagner, P. (2019, March 19). *Mass incarceration: The whole pie 2019*. Prison Policy Initiative. <https://www.prisonpolicy.org/reports/pie2019.html>
- Social Security Administration. (2018, October). *OASDI and SSI Program rates & limits, 2019*.
https://www.ssa.gov/policy/docs/quickfacts/prog_highlights/RatesLimits2019.html
- Spera, C., Ghertner, R., Nerino, A., & DiTommaso, A. (2013, June). *Volunteering as a pathway to employment: Does volunteering increase odds of finding a job for the out of work?* Corporation for National and Community Service (now AmeriCorps).
https://www.nationalservice.gov/sites/default/files/upload/employment_research_report.pdf
- Stanley, C., Petscher, Y., & Catts, H. (2018). A longitudinal investigation of direct and indirect links between reading skills in kindergarten and reading comprehension in tenth grade. *Reading and Writing*, 31, 133-153. <https://doi.org/10.1007/s11145-017-9777-6>

- Tax Foundation. (2019). *State and local sales tax rates, 2019*.
<https://taxfoundation.org/sales-tax-rates-2019/>
- Trostel, P. (2015). *It's not just the money: The benefits of college education to individuals and to society*. Lumina Foundation.
<https://www.luminafoundation.org/files/resources/its-not-just-the-money.pdf>
- U.S. Bureau of Labor Statistics. (2018). *Consumer Expenditure Surveys—Annual calendar year tables*. <https://www.bls.gov/cex/tables.htm#annual>
- U.S. Bureau of Labor Statistics. (n.d.). *CPI for all urban consumers—Midwest region, all items*. <https://data.bls.gov/cgi-bin/surveymost?cu>
- U.S. Census Bureau. (2018). Current Population Survey. *PINC-03. Educational attainment - People 25 years old and over, by total money earnings, work experience, age, race, Hispanic origin, and sex*. <https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pinc/pinc-03.2017.html>
- Zeidenberg, M., Freeman, B., Friedman, E., & Porowski, A. (2016, April 27). *Results from the National Student Clearinghouse Data Match: New methods for assessing AmeriCorps alumni outcomes*. Abt Associates.
https://www.nationalservice.gov/sites/default/files/evidenceexchange/FR_NatlStudent_ClearinghouseMatch_AlumniOutcomes_2016.pdf