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Costs and Benefits Analysis

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***Costs & Benefits Analysis – College Possible’s College Access Program in Minnesota (An AmeriCorps Program)***

**Introduction:**

This paper first examines the costs and benefits of College Possible’s College Access program in Minnesota. It then proposes an alternative policy (i.e., a policy change) which is to extend the duration of the program from two years to three years. After estimating the costs and benefits of the alternative policy, the costs and benefits of two policy scenarios are compared and examined to determine what policy actions should be taken. After reviewing the results of the costs and benefits analysis, the paper recommends the *business-as-usual*.

College Possible is a non-profit organization that supports low-income high school students in college access, readiness, and success, operating in Portland, OR; Philadelphia, PA; Chicago, IL; Milwaukee, WI; Omaha, NE; and Minneapolis-St. Paul, MN. College Possible’s College Access program serves students during their junior and senior years of high school.<sup>1</sup> Students attend after-school educational sessions led by AmeriCorps members, who have attained a bachelor’s degree, for two hours twice a week throughout those two school years. The educational sessions focus on preparing for college, identifying a best-fit college, academic preparation, financial planning, and personal development.<sup>2</sup>

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<sup>1</sup> Munaretto, C., Casey, B., Miller, B., Modicamore, D., Naugler, A., & Pershing, J. (2020). *Return on Investment Study: College Possible College Access Program*. ICF.

<sup>2</sup> College Possible. (2014). *College Possible: Closing the achievement gap for low*

Since the implementation of the program in 2007, several evaluations have been conducted and have revealed positive results. Using organization records, in their 2013 evaluation, Hawley and Uekawa studied the outcomes of six College Access high school graduation cohorts. They found that College Access students enrolled in college at much higher rates than similar students nationally. Moreover, the average number of College Access students each year had grown significantly from 2007 to 2012.<sup>3</sup> Further, bachelor's degree attainment rates were satisfactory as well among College Access students, with 44% of students in the 2007 cohort earning their degree within five years.<sup>4</sup> The evaluation recommended program continuation as well as maximizing the amount of coaching students receive, given the strong correlation between hours of College Access coaching and post-secondary education outcomes.<sup>5</sup> In the same year, another study conducted by the National Bureau of Education Research (NBER) echoed the findings of Howley and Uekawa. The study conducted a randomized controlled trial (RCT) of qualified juniors participating in College Access at eight high schools in Minneapolis and St. Paul, MN, and followed up with them in their senior year and the subsequent spring.<sup>6</sup> The RCT results revealed that the College Access program had significantly increased both applications and enrollment to four-year colleges among students.<sup>7</sup> Moreover, the study found

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*income students. Investing in innovation.*

<https://www2.ed.gov/programs/innovation/2014/college.pdf>

<sup>3</sup> Howley, C. & Uekawa, K. (2013). *Evaluation of College Possible postsecondary outcomes 2007–2012*.

[https://www.nationalservice.gov/sites/default/files/evidenceexchange/FR\\_College%20Possible%20Postsecondary%20Outcomes\\_2012.pdf](https://www.nationalservice.gov/sites/default/files/evidenceexchange/FR_College%20Possible%20Postsecondary%20Outcomes_2012.pdf).

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Avery, C. (2013). Evaluation of the College Possible Program: Results from a randomized controlled trial. *NBER Working Paper* 19562, JEL No. I23,I24.

<https://www.nber.org/papers/w19562.pdf>.

<sup>7</sup> According to the study, participation in the College Access program approximately increased the probability of students applying to a four-year college by 31.7 percentage points, it also increased the enrollment in any college by 7.2 percentage points approximately.

that participation in the College Access program also encouraged students to apply to and enroll in more selective colleges, thus, achieving differences in educational attainment in the long run and in future earnings.<sup>8</sup> Yet, the study found little evidence of any effect of the College Access program on ACT performance, demanding more hours of academic coaching.<sup>9</sup> In a most recent study conducted by ICF in 2020, the cost-benefit ratio was used to study the outcomes of the College Access program in Minnesota. The results showed that across the time horizons (i.e., one year, 15 years, and 30 years), the College Access program returned much more than one dollar for every one dollar of investment.<sup>10</sup>

Past studies have shown that the College Access program has achieved high efficacy, although with room for improvement. The paper incorporated both the rationale of the College Access program and recommendations from past evaluations to propose a change to the program, which is to extend the duration of the program from two years to three years. With an extended program duration, College Access students would receive more coaching hours, especially for academic tutoring, thus, acquiring higher college application and enrollment rates.

## **Modeling the Costs and Benefits:**

### ***Costs:***

For each program year, the costs of the College Access program consist of (i) AmeriCorps member stipend (i.e., education awards and fringe benefits), (ii) operating costs of

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<sup>8</sup> Avery, C. (2013).

<sup>9</sup> Ibid.

<sup>10</sup> Munaretto, et al. (2020).

the College Access program, and (iii) federal government funding.<sup>11</sup> Note that AmeriCorps member stipend is provided using federal grants, therefore, the College Possible only incurs the costs of operating the program. The costs are therefore generated by two stakeholder groups, which are College Access participants and AmeriCorps members. The annual costs per individual are calculated by dividing the total costs by the number of College Access participants and AmeriCorps members respectively. Table 1 shows the costs of the College Access program per individual per year by stakeholder group category.<sup>12</sup>

**Table 1**

<b>Costs of the College Access Program Per Individual Per Year (\$)</b>	
<b>Stakeholder Group</b>	<b>Cost (\$)</b>
College Access Participants	\$3,737.25
AmeriCorps Members	\$7,968.30

***Benefits:***

According to Trostel, higher education attainment yields private and public benefits in the immediate and the long term. Private benefits include additional earnings, higher job safety,

<sup>11</sup> This paper assumes that one program year equals to one chronological year.

<sup>12</sup> Data on AmeriCorps member stipend, operating costs of the College Access program, federal government funding, and the number of College Access program participants and AmeriCorps members were obtained from College Possible's organization record of the 2017-2018 academic year. See <https://collegepossible.org/wp-content/uploads/2020/12/College-Possible-2019-Audit-Financial-Statements-FINAL.pdf>.

better health behaviors, etc.<sup>13</sup> Further, with lower incidences of poverty, unemployment, and disability associated with higher education attainment, government expenditures on public assistance, social insurance, and incarceration are reduced.<sup>14</sup> As outlined in Table 2, as a result of the College Access program, College Access program participants and AmeriCorps members benefit from the program. Moreover, benefits are also enjoyed by the state and local government, as well as the federal government.

**Table 2**

<b>Group Incurs Benefits</b>	<b>Benefits</b>
College Access Participants	- Additional earnings from increased educational attainment
AmeriCorps Members	<ul style="list-style-type: none"> <li>- Education awards</li> <li>- Additional earnings from increased education attainment due to the education award</li> <li>- Fringe benefits (i.e., living allowance)</li> </ul>
Government	<ul style="list-style-type: none"> <li>- Income tax revenue from additional earnings of College Access participants and AmeriCorps members</li> <li>- Public economic benefits (i.e., health savings, reduced welfare payments, and reduced incarceration) generated by increased education attainment of College Access participants and AmeriCorps members</li> </ul>

***Benefits to College Access Program Participants:***

<sup>13</sup> Trostel, P. (2015). *It's not just the money: The benefits of college education to individuals and to society*. <https://www.luminafoundation.org/files/resources/its-not-just-the-money.pdf>.

<sup>14</sup> Ibid.

The annual additional earnings per College Access participant are calculated by: first, calculating the differences in median earnings in 2020 between high-school degree holders and bachelor's degree holders of each gender and ethnicity in the U.S.<sup>15</sup>, second, calculating the mean and standard deviation of these differences respectively, third, generate four random numbers using the mean and standard deviation,<sup>16</sup> fourth, calculating the mean of the four random numbers.

**Table 3**

<b>Additional Students with a Bachelor's Degree and Expected Median Annual Additional Earnings (\$)</b>					
<b>College Access Participants</b>	<b>Additional Students with Bachelor's Degree</b>		<b>Annual Additional Earnings Per Individual (\$)</b>		<b>Annual Additional Earnings Per Individual (\$)</b>
Race	Male	Female	Male	Female	\$33432.69
White	1	2	\$23,805.00	\$16,956.00	
Black	7	12	\$6,786.00	\$15,427.00	
Hispanic	4	6	\$9,320.00	\$11,289.00	
Other	19	30	\$31,146.00	\$20,260.00	

***Benefits to AmeriCorps Members:***

Tables 4 and 5 showed the benefits to AmeriCorps members, which are: (i) living allowance and education awards and (ii) increased earnings due to increased education

<sup>15</sup> U.S. Census Bureau. (2020) Current Population Survey (CPS). 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/cpspinc/pinc-03.html>.

<sup>16</sup> Assume the median earnings have a normal distribution.

attainment derived from the education awards. Note that the fringe benefits and education awards are taxable, therefore, the 2017 and 2018 federal income tax rates are taken into account.<sup>17</sup> To calculate the annual post-tax fringe benefits and education awards per AmeriCorps member, the total dollar amount of fringe benefits and education awards are divided respectively by the number of AmeriCorps members served in the program from 2017 to 2018.<sup>18</sup> Further, the annual additional earnings per AmeriCorps member are calculated as the difference in earnings between bachelor's degree holders and graduate degree holders, using the 2020 data from the U.S. Bureau of Labor Statistics.

**Table 4**

<b>Fringe Benefits &amp; Education Awards to AmeriCorps Members Per Individual Per Year (\$)</b>	
<b>Benefits</b>	<b>Post-tax Value Per Individual Per Year (\$)</b>
Fringe Benefits	\$4,225.08
Education Awards	\$1,778.06
Total Fringe Benefits & Education Awards	\$6,003.14

**Table 5**

<b>Expected Additional Earnings to AmeriCorps Members Due to Higher Education Attainment (\$)</b>	
<b>Number of AmeriCorps Members</b>	<b>Annual Additional Earnings Per Individual (\$)</b>

<sup>17</sup> AmeriCorps (formerly Corporation for National & Community Service). (2020a). *Tax implications*. <https://www.nationalservice.gov/programs/americorps/segalamericorps-education-award/tax-implications>.

<sup>18</sup> AmeriCorps (formerly Corporation for National & Community Service). (2020b). *Amount, eligibility, and limitations*. <https://www.nationalservice.gov/programs/americorps/segalamericorpseducation-award/amount-eligibility-and-limitations>.

71	\$1,504.00
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***Benefits to State and Local Government:***

*Income Tax and Sales Tax Revenues:*

The income and sales tax revenues to state and local government are calculated by: (i) calculating the differences in the 2020 annual median earnings between high-school degree holders and bachelor's degree holders, as well as between bachelor's degree holders and graduate degree holders, and (ii) adjusting the differences respectively using the 2020 Minnesota state income tax rate (7.05%) for College Access participants and the average of 2020 state income tax rate across all U.S. states (4.80%) for AmeriCorps members.<sup>19</sup> The sales tax revenue to state and local government is calculated in a similar fashion, In addition, the 2020 Consumer Expenditure Surveys of the U.S. Bureau of Labor Statistics are used to estimate the annual taxable spending of College Access participants and AmeriCorps members based on their annual median earnings.<sup>20</sup>

**Table 6**

<b>Benefits to State &amp; Local Government - Expected Additional Income Tax Revenue (\$)</b>			
<b>Stakeholder</b>	<b>Total Annual Additional</b>	<b>Tax Rate (%)</b>	<b>Total Annual Additional Income</b>

<sup>19</sup> Tax Foundation. (2020). *State and local sales tax rates, 2020*. <https://taxfoundation.org/sales-tax-rates2020/>. The average of 2020 state income tax rate across all U.S. states is used assuming the spending activities of AmeriCorps members after serving in the program are not limited in Minnesota.

<sup>20</sup> U.S. Bureau of Labor Statistics (BLS). (2020). *Consumer Expenditure Surveys (CES)*. *Annual calendar year*. <https://www.bls.gov/cex/tables>.



<b>Group</b>	<b>Earnings Per Individual (\$)</b>		<b>Tax Revenue Per Individual (\$)</b>
College Access Participants	\$32,900.53	7.05%	\$23,195
AmeriCorps Members	\$3,017.94	4.80%	\$1,449

**Table 7**

<b>Benefits to State &amp; Local Government - Expected Additional Sales Tax Revenue (\$)</b>		
<b>College Access Participants</b>	<b>Total Annual Taxable Income (\$)</b>	
Race	Male	Female
White	\$7,569.00	\$9,641.00
Black	\$19,098.00	\$67,909.00
Hispanic	\$13,224.00	\$29,117.00
Others	\$192,053.00	\$225,931.00
<b>Total Annual Taxable Income Spending (\$)</b>	\$564,540.00	
<b>Total Annual State &amp; Local Government Sales Tax Revenue (\$)</b>	\$28,594.00	

*State and Local Government Cost Savings:*

As pointed out earlier, higher education attainment benefits the government with lifetime savings in corrections and social insurance (i.e., unemployment insurance compensation and

worker's compensation). To calculate the lifetime government savings, the difference in lifetime costs in corrections and social insurance was calculated between high school degree holders and bachelor's degree holders as well as between bachelor's degree holders and graduate degree holders.<sup>21</sup> To estimate the costs of social insurance for state and local government versus for the federal government, what is taken into consideration is that 50% of lifetime unemployment insurance costs savings and all the lifetime costs savings for workers' compensation are apportioned to state and local governments.<sup>22</sup> Further, to calculate the reductions in lifetime corrections costs to state and local government, it is estimated that 90.3% of the U.S. incarcerated population in 2019 was housed in state and local facilities versus 9.7% in federal facilities.<sup>23</sup>

**Table 8**

<b>Benefits to State &amp; Local Government - Expected Cost Savings (\$)</b>
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<sup>21</sup> Trostel, P. (2015).

<sup>22</sup> 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>.

<sup>23</sup> Sawyer, W., & Wagner, P. (2019, March 19). *Mass Incarceration: The Whole Pie 2019*. <https://www.prisonpolicy.org/reports/pie2019.html>.

<b>Stakeholder Group</b>	<b>Unemployment Insurance Savings Per Individual (\$)</b>	<b>Incarceration Savings Per Individual (\$)</b>	<b>Total Cost Savings Per Individual (\$)</b>
College Access Participants	\$2,148.70	\$6,597.49	\$8,746.19
AmeriCorps Members	\$22.56	\$16.90	\$39.46

***Benefits to the Federal Government:***

*Federal Income Tax Revenue:*

To measure the income tax revenue to the federal government, the annual median earnings of College Access participants and AmeriCorps members are taxed by the marginal federal income tax rates in 2020.<sup>24</sup>

**Table 9**

<b>Expected Additional Federal Income Tax Revenue (\$)</b>
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<sup>24</sup> U.S. Census Bureau. (2020) Current Population Survey (CPS).

<b>Stakeholder Group</b>	<b>Total Annual Additional Earnings Per Individual (\$)</b>	<b>Marginal Tax Rate (%)</b>	<b>Annual Additional Income Tax Revenue Per Individual (\$)</b>
College Access Participants	\$32,900.53	17%	\$5,593.09
AmeriCorps Members	\$3,017.94	22%	\$663.95

*Social Security and Medicare Tax Revenue:*

Social Security and Medicare tax revenue to the federal government are measured based on the annual median earnings of College Access participants and AmeriCorps members, taxed by a 7.65% Social Security and Medicare tax rate.<sup>25</sup>

**Table 10**

<b>Expected Additional Federal Social Security and Medicare Tax Revenue (\$)</b>		
<b>Stakeholder Group</b>	<b>Tax Rate (%)</b>	<b>Annual Additional Federal Social Security and Medicare Tax Revenue Per Individual (\$)</b>
College Access Participants	7.65%	\$2,516.89
AmeriCorps Members	7.65%	\$230.87

*Federal Government Cost Savings:*

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<sup>25</sup> *If you are self-employed - social security administration.* (n.d.). Retrieved May 3, 2022, from <https://www.ssa.gov/pubs/EN-05-10022.pdf>.

To estimate cost savings in federal social insurance, public assistance, and federal corrections, the differences between public assistance, federal social insurance, and federal corrections costs for high-school degree holders and bachelor's degree holders, as well as between bachelor's degree holders and graduate degree holders are calculated to reflect the cost savings generated by College Access participants and AmeriCorps members respectively.<sup>26</sup> Moreover, as previously mentioned, the federal government receives 50% of the lifetime cost savings in unemployment insurance compensation and around 10% of the lifetime cost savings in corrections.<sup>27</sup>

**Table 11**

<b>Expected Costs Saving to Federal Government (\$)</b>			
<b>Stakeholder Group</b>	<b>Total Unemployment Insurance Savings Per Individual (\$)</b>	<b>Total Incarceration Savings Per Individual (\$)</b>	<b>Total Cost Savings Per Individual (\$)</b>
College Access Participants	\$1,305.69	\$707.18	\$2,012.86
AmeriCorps Members	\$22.93	-\$2.83	\$20.10

### **Assumptions in Predicting the Costs and Benefits:**

<sup>26</sup> Sawyer, W., & Wagner, P. (2019).

<sup>27</sup> Ibid.

This paper has the following assumption in modeling and predicting the costs and benefits of the College Access program and the policy alternative.

*Assumption 1:*

Students in the College Access program receive (i) extensive tutoring designed to help increase their ACT performance and (ii) guidance with college applications. As a result, they are more ambitious in applying for colleges and more likely to be admitted to and enroll at colleges.<sup>28</sup>

However, extending the duration of the program from two years to three years does not alter the annual benefits (i.e., additional earnings due to education attainment) per College Access student. It is hypothesized that the College Access program, unlike the College Success program, which connects students to resources on campus, and helps them in tackling academic barriers and identifying future employment opportunities, does not show significant impacts on bachelor's degree completion.<sup>29</sup> Note that the policy alternative does alter the annual benefits per AmeriCorps member, however, the changes in benefits only occur in fringe benefits and education awards. According to the tuition cost data from the National Center for Education Statistics (NCES), the average annual tuition for graduate degrees is \$24,672.<sup>30</sup> Considering also AmeriCorps members receive approximately \$1,778.06 worth of education awards per year, it is safe to say that the annual additional education awards induced by increased program duration do not seem to significantly assist AmeriCorps members in furthering their education and acquiring better employment opportunities due to higher education attainment.

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<sup>28</sup> Avery. C (2013).

<sup>29</sup> Munaretto, et al. (2020).

<sup>30</sup> National Center for Education Statistics. (2020). *Digest of education statistics. 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: 2018–19 and 2019–20.*

**Results:*****Status Quo Policy:***

As shown in Table 12, the benefits of the status quo policy are \$114,000.72, the costs are \$23,411.08, the net benefits are \$90,589.64, and the net present value is \$85,389.43.<sup>31</sup>

**Table 12**

<b>Program Benefits (\$)</b>	<b>Program Costs (\$)</b>	<b>Program Net Benefits (\$)</b>	<b>Program Net Present Value (\$)</b>
\$114,000.72	\$23,411.08	\$90,589.64	\$85,389.43

***Alternative Policy:***

As shown in Table 13, the benefits of the policy alternative are \$126,007.00, the costs are \$35,116.62, the net benefits are \$90,890.38, and the net present value is \$83,177.58. According to *Assumption 1*, the costs of the alternative policy were calculated based on multiplying the per individual per year program costs by the time periods, and the benefits were calculated based on multiplying the per individual per year AmeriCorps fringe benefits and education awards by the time periods.

<b>Program Benefits (\$)</b>	<b>Program Costs (\$)</b>	<b>Program Net Benefits (\$)</b>	<b>Program Net Present Value (\$)</b>
\$126,007.00	\$35,116.62	\$90,890.38	\$83,177.58

**Table 13****Comparing the Status Quo Policy and the Policy Alternative:**


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<sup>31</sup> A 3% social discount rate is used in the analysis, as suggested by the Office of Management and Budget (OMB). See Circular A-94, Guidelines and Discount Rates for Benefit-Cost analysis of Federal Programs, released by the Office of Management and Budget (OMB).

Since the status quo policy and the alternative policy differ in time horizons, they are not directly comparable, therefore, their equivalent annual net benefits (EANB) are calculated, as shown in Table 14.

**Table 14**

<b>Equivalent Annual Net Benefits of the Program (\$)</b>	<b>Equivalent Annual Net Benefits of the Policy Alternative (\$)</b>
\$44,243.23	\$19125.83

### **Recommendations:**

As shown in Table 14, the status quo policy has much higher equivalent annual net benefits, therefore the status quo policy, which has a program duration of two years, should be continued, the alternative policy, which is to increase the duration of the program to three years, should be rejected. The costs and benefits analysis showed that the College Access program efficiently enables low-income high school students to pursue higher education attainment, which benefits them greatly in both the short and long term. The analysis also showed that the program benefits AmeriCorps members, although to a lesser degree. Overall, College Possible's College Access program in Minnesota fulfills the mission of the organization and the AmeriCorps program.

### **Reference**



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