

The Net Benefits of Raising Bachelor's Degree Completion Through CUNY's ACE Program

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Bachelor's degree (BA) attainment is one of the most reliable indicators of an individual's future economic and social advantage. Four-year college graduates earn more, pay more in taxes, are healthier, and are more likely to vote and volunteer. Despite these documented benefits, gaps in BA attainment have widened over time, even as overall rates of attainment have increased.

In 2015, the City University of New York (CUNY) launched a new program—Accelerate, Complete, and Engage (ACE)—aimed at improving bachelor's degree completion rates. A randomized-control evaluation of the program found a nearly 12 percentage point increase in graduation five years after college entry. Despite this compelling evidence, public funding for ACE is not a foregone conclusion. Programs like ACE may be disadvantaged during budget cycles, as policymakers weigh quantifiable up-front costs against unquantified future benefits.

This brief uses the ACE impact estimates, along with national data on earnings, to estimate the expected incremental long-run benefits and costs from CUNY ACE participation, as well as intergenerational benefits to the children of participants, relative to “business as usual”. We find that net social benefits are large, even under our most conservative assumptions. While our analysis is focused on CUNY ACE, our approach highlights the long-term value of both increasing and accelerating college completion more generally.

KEY FINDINGS

- We estimate net social benefits of nearly \$43,000 per CUNY ACE participant, which are primarily driven by greater earnings of participants over their lifetime.
- Including intergenerational benefits for children of ACE participants, who grow up in higher-earning families, nearly triples our main estimate, to over \$125,000 net social benefits per participant.
- These results may be larger or smaller depending upon whether ACE's impact on graduation after five years persists indefinitely, or whether the control group eventually catches up—but net social benefits are strongly positive in all scenarios.

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BACKGROUND

Bachelor's degree (BA) attainment is one of the most reliable indicators of an individual's future economic prospects.² Four-year college graduates are more likely to be employed, and those working full-time earn more than 40 percent more on average than those with only some college or a two-year degree.³ They also pay more in taxes, practice healthier behaviors, are more likely to vote and volunteer, and engage in a wider variety of educational activities with their young children than those without a four-year degree.⁴ Evidence suggests that these differences are not mere correlations, but reflect real causal impacts of increasing educational attainment.⁵

Despite the high payoff, BA attainment rates remain lower in the United States than in many other high-income countries, and inequality in degree attainment has widened even as rates have risen over time.⁶ At 28 percent and 23 percent respectively, BA attainment for young Black and/or Hispanic Americans in 2021 has only recently approached a level that young White Americans reached 40 years ago.⁷ While these gaps in degree attainment are the product of broader social and economic inequality, they may also reflect lower levels of public investment in the colleges that low-income students and students of color are most likely to attend.⁸

In this context, the City University of New York (CUNY) launched a comprehensive program to help BA students surmount the obstacles—financial, academic, structural, social—that too often get in the way of persistence and degree completion. The program, known as ACE (Accelerate, Complete, Engage), launched at John Jay College of Criminal Justice in 2015, and was modeled on CUNY's highly successful ASAP program, which sought to increase associate's degree completion.⁹ Like ASAP, ACE provides eligible students with tuition waivers, transportation and book vouchers, enhanced advising, and streamlined course scheduling. Evidence from a rigorous randomized control trial (RCT) conducted at John Jay beginning in 2018 finds that ACE increased BA completion by nearly 12 percentage points five years after college entry, from 57 percent to nearly 69 percent.¹⁰

Despite this compelling evidence of impact, public funding for ACE is not a foregone conclusion. Program administrators estimate that ACE costs about \$4,000 per participant per year (on top

² We use "BA" interchangeably with "bachelor's degree" though some bachelor's degrees have a different acronym (e.g. BS for bachelor's of science).

³ Ma and Pender, [Education pays 2023](#).

⁴ Ma and Pender, [Education pays 2023](#).

⁵ See: Card, 1999, [The causal effect of education on earnings](#); Barrow and Malamud, 2015, [Is college a worthwhile investment?](#); Lovenheim and Smith, 2023, [Returns to different postsecondary investments: Institution type, academic programs, and credentials](#). For broader evidence suggesting that years of schooling causally improve a range of non-financial outcomes as well, see Oreopoulos and Petronijevic, 2013, [Making college worth it: A review of the returns to higher education](#).

⁶ See: Bailey and Dynarski, 2023, [Educational attainment of 25-64 year-olds](#); Bailey and Dynarski, 2011, [Gains and gaps: Changing inequality in U.S. college entry and completion](#).

⁷ Ma and Pender, [Education pays 2023](#).

⁸ Hillman, 2020, [Why rich colleges get richer & poor colleges get poorer: case for equity-based funding in higher ed](#).

⁹ For impacts of CUNY's ASAP on degree completion, see Weiss et al., 2019, [Supporting community college students from start to degree completion](#). For a benefit-cost evaluation of CUNY's ASAP, see Levin and García, 2018, [Accelerating community college graduation rates: A benefit–cost analysis](#)

¹⁰ Scuello and Strumbos, 2024, [Evaluation of Accelerate, Complete, Engage \(ACE\) at CUNY John Jay College of Criminal Justice final report](#).

of baseline educational expenditures).¹¹ The expected additional benefits are more challenging to assess, as they accrue over participants' lifetimes—potentially extending even into subsequent generations—and are diffused across a range of outcomes and stakeholders. As a result, programs like ACE may be disadvantaged during annual budget cycles, as policymakers weigh quantifiable up-front costs against unquantified future benefits.

ANALYSIS

To accurately assess the value of any investment, we need good estimates of both costs and benefits relative to a baseline. We estimate the long-term benefits of CUNY's ACE program (above and beyond baseline college services) for both participants and other taxpayers, based on ACE's substantial impact on bachelor's degree completion. While our main estimates focus on earnings-related benefits from the current generation of participants, we also draw upon prior work to estimate the lifetime benefits accruing to participants' children due to their parents' additional income. For program costs, we start from the program's direct budgetary costs, and then add the indirect costs to participants and taxpayers of additional semesters of enrollment induced by ACE participation.

Our analysis starts with the rates of enrollment and Bachelor's degree completion for the treatment and control groups through five years post-entry, taken directly from the program's publicly available RCT evaluation reports.¹² To estimate persistence and eventual degree completion rates up to ten years after college entry, we use publicly available data on full-time college entrants at CUNY's John Jay College.¹³ To project median earnings by age, gender, and educational attainment, we use the American Community Survey (ACS) 5-year data from 2015–2019. Since the ACE evaluation sample is predominantly (70%) women, we estimate earnings profiles separately by gender and then weight the averages to reflect the gender composition of the ACE sample. Benefits that accrue in the future are discounted to the present using a social discount rate of 2 percent, but we also display results with alternative, higher social discount rates.¹⁴

For our intergenerational estimates, we further use the national ACS data to project how many children ACE participants and control group members are expected to have over time, and then consider the estimated post-tax earnings by age of parents of our ACS sample. Then we calculate long-run impacts on children that result from changes in parental earnings, based on the findings of Garfinkel et al. (2022) regarding the causal relationship between household income and children's outcomes (details of the calculation are included in section A.2 of Appendix A). Finally, we prorate these intergenerational benefits by household income, based on evidence that children's gains from increases in household income are greatest when initial household income is lower. All benefits are discounted to the present, assuming a participant starts college at age 18.

¹¹ The per-student ACE cost estimate comes from personal communication with CUNY administrators; see Section III.F. in the [full report](#) for additional details.

¹² See: Zhu et al., 2023, [Evaluation of Accelerate, Complete, Engage \(ACE\) at CUNY John Jay College of Criminal Justice year 4 interim study report](#); Scuello and Strumbos, 2024, [Evaluation of ACE final report](#).

¹³ Scuello and Strumbos, 2024, [Evaluation of ACE at CUNY John Jay College of Criminal Justice final report](#); CUNY OARED, 2024, [Student data book](#).

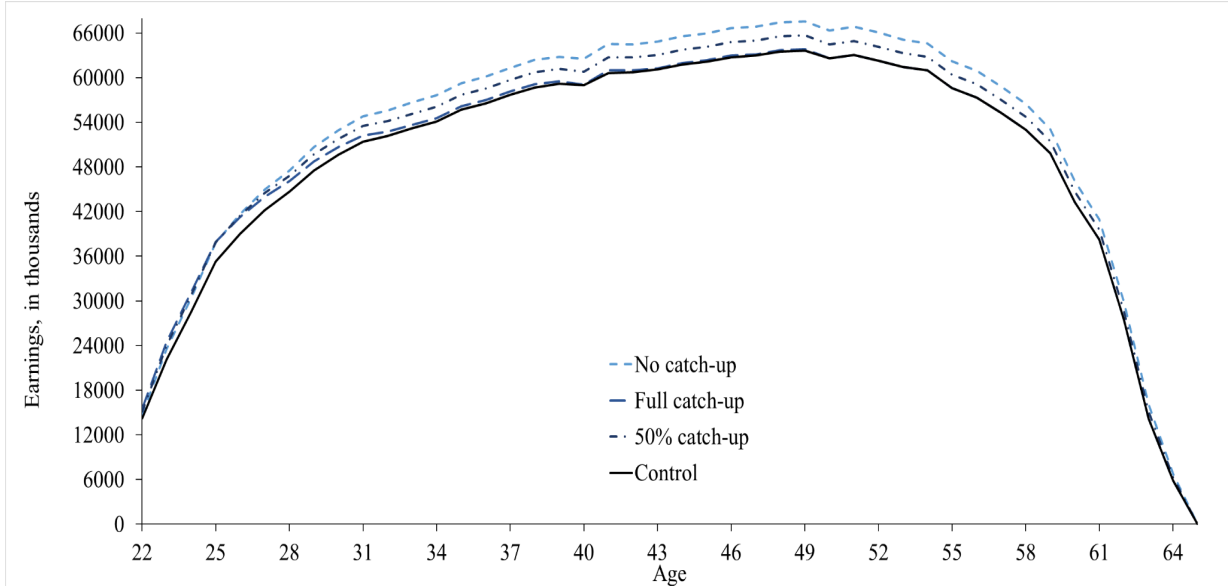
¹⁴ As recommended by OMB, 2023, [Circular A-4](#), governing benefit-cost analyses for all Federal agencies.

An important issue for any program impacting degree completion is the persistence of the impact over time. It is possible that the 12-percentage-point impact on completion after five years (as measured in the ACE impact evaluation) may diminish over time, if ACE accelerates completion but students in the control group persist and graduate at similar rates eventually. In our analysis, we assess how the estimated benefits of ACE change if the observed impact on degree completion represents a permanent impact on degree completion, versus purely an acceleration of when those degrees are earned. Our core results assume that the degree completion impact diminishes by 50% over the next five years (to about a six percentage point impact, ten years after program entry).

MAIN RESULTS

Figure 1 shows our projected earnings trajectories for the control group from the RCT, along with our projections for the treatment group under three different scenarios regarding the persistence of the degree completion impact.

Figure 1. Lifetime unconditional earnings trajectories, by CUNY ACE treatment status and catch-up scenario



Source: Authors’ projections using CUNY ACE (Accelerate, Complete, Engage) evaluation impact estimates and American Community Survey (ACS) 2015-2019 five-year data.

Note: ACE provides Bachelor’s degree students at CUNY with a range of financial and academic supports, with the goal of increasing and accelerating degree completion. Estimates represent median earnings by age in 2023 dollars, without conditioning on employment.

These earnings projections are central to our lifetime benefit estimates for the current generation, as well as to our estimation of intergenerational benefits. Our most pessimistic, “full catch-up” scenario assumes the control group just finishes their degrees more slowly, but eventually fully catches up to the treatment group in terms of degree completion. The figure shows that even in this most pessimistic scenario, ACE participants are still projected to earn

notably more during their twenties due to their earlier entry into the labor market (gaining an average of \$1,600 more in earnings at each age from ages 22-30), and those extra years of work experience alone lead to slightly higher earnings than the control group in later years. These early earnings benefits are particularly important for intergenerational effects, since these years are when children in the household begin to benefit from parents' increased resources.

Table 1 summarizes the main components of our estimate, using our midpoint assumptions about the persistence of the degree completion effect.

Table 1. Costs, earnings gains, and net benefits of CUNY ACE (midpoint scenario)

	Participants	Taxpayers	Total Society
Incremental ACE costs			
ACE direct program costs/transfers	\$7,795	-\$12,374	-\$4,578
Induced costs from extra education	-\$1,133	-\$3,320	-\$4,453
Total	\$6,663	-\$15,694	-\$9,031
Lifetime earnings gains	\$37,636	\$14,350	\$51,986
Second generation benefits	\$50,702	\$31,846	\$82,549
Net benefits, current gen. only	\$44,299	-\$1,344	\$42,955
Net benefits, incl. second gen.	\$95,001	\$30,502	\$125,504

Source: Authors' projections using CUNY ACE (Accelerate, Complete, Engage) evaluation impact estimates and American Community Survey (ACS) 2015-2019 five-year data.

Note: ACE provides Bachelor's degree students at CUNY with a range of financial and academic supports, with the goal of increasing and accelerating degree completion. Estimates expressed in present value using a 2% social discount rate. Numbers are in 2023 dollars and may not sum up exactly to total due to rounding. Negative numbers reflect costs while positive numbers reflect benefits.

The initial social costs of the program relative to baseline are given in the first three rows of Table 1. ACE expenditures equal \$12,374 per participant, but \$7,795 of that amount are direct transfers to program participants. Thus the net cost of ACE to society as a whole is \$4,578. To the extent that ACE succeeds in increasing or hastening educational attainment, taxpayers incur \$3,320 in additional costs for the increase in education, and program participants incur \$1,133 in additional costs via forgone earnings, tuition, and other expenses, resulting in an additional social cost of \$4,453. Thus, total social costs of ACE equal \$9,031.

Under our midpoint scenario, CUNY ACE generates \$42,955 in net social benefits per participant over a lifetime. This translates to a ratio of \$4.76 current-generation net social benefits per \$1 of social costs. Alternatively, the net benefits could be compared to initial ACE expenditures of \$12,374, yielding a ratio of 3.47. This ratio, even without including intergenerational benefits, compares favorably to benefit-cost ratios found for college financial aid programs (which range

from 1.50 to 2.58).¹⁵ It is also consistent with (if not directly comparable to) estimates for CUNY ASAP, for which Levin and García (2018) estimate a benefit-cost ratio of 3.5, though their estimate incorporates additional benefits beyond earnings that our current-generation estimates do not.

Persistence of degree completion impacts, intergenerational benefits, and subgroups

Table 2 further shows that ACE’s net social benefits, relative to the baseline college experience, could be substantially larger if the five-year completion impact persists indefinitely (\$71,681, with a ratio of \$5.79 in net social benefits per \$1 of initial taxpayer costs). Even if the control group catches up completely, such that ACE only accelerates degree completion, the net benefits to society are over \$14,000 per participant (\$1.15 in net benefits per \$1 of initial taxpayer investment).

Table 2. Net social benefits of CUNY ACE per dollar of direct taxpayer investment, by scenario

SCENARIO	Net Social Benefit (per participant)	Net Social Benefit per dollar of direct taxpayer cost
Current generation only		
Midpoint Scenario	\$42,955	3.47
Optimistic (permanent completion effect)	\$71,681	5.79
Pessimistic (degree acceleration only)	\$14, 219	1.15
Including intergenerational (net) benefits		
Midpoint scenario	\$125,504	10.14
Optimistic (permanent completion effect)	\$191,163	15.45
Pessimistic (degree acceleration only)	\$54,000	4.36

Source: Authors’ projections using CUNY ACE (Accelerate, Complete, Engage) evaluation impact estimates and American Community Survey (ACS) 2015-2019 five-year data.

Note: ACE provides Bachelor’s degree students at CUNY with a range of financial and academic supports, with the goal of increasing and accelerating degree completion. Estimates expressed in present value using a 2% social discount rate. Estimates are in 2023 dollars.

It is also important to note that our analysis does not attempt to estimate all of the possible benefits of the program that are conceptually suggested. In particular, we have not attempted to estimate the potential benefits to participants from increased health and longevity or reduced crime, nor to estimate the benefits to children that may accrue through non-parental-earnings channels (i.e., the direct benefits children may receive from a parent’s additional education, separate from any increase in parental income). It is thus possible the true social benefits could be even larger than the largest estimates we present here.

¹⁵ Harris and Mills, 2021, [Optimal college financial aid: Theory and evidence on free college, early commitment, and merit aid from an eight-year randomized trial](#).

When we incorporate intergenerational benefits into our overall net benefit calculations, the results increase substantially. In our most optimistic scenario, the present value of net social benefits per participant are over \$191,000. Even in the acceleration-only scenario, ACE still yields substantial net social benefits (\$54,000), highlighting the value of accelerating college completions, especially for young families with children. These large intergenerational effects occur because even small increases in household annual income have been found to have large, long-lasting impacts over children's lifetime outcomes (including but not limited to earnings, health, longevity, and crime), and increases in parental income are projected to occur across multiple years for as long as the child lives in the household, even in the acceleration-only scenario.

Considering the taxpayer perspective in isolation, the program may not quite pay for itself in the current generation (at least given the limited set of current-generation benefits we consider), but the long-term cost to taxpayers is still much lower than their initial investment, due to increased income tax payments and reductions in public assistance. When including second-generation benefits, even taxpayers come out ahead, regardless of the assumptions we make about how much of the degree completion impact persists permanently.

In the [full report](#), we split our benefit projections by gender, and show that men are likely to experience higher earnings gains from CUNY ACE participation. This is primarily due to the substantially larger impact on degree completion for men, as reported in Scuello and Strumbos (2024). A third of this higher benefit, however, can be attributed to men's higher earnings than women with the same credentials and years of experience. This highlights the need for complementary programs that support women's labor force participation.

Limitations

As we discuss more fully in the paper underlying this research brief, there are some limitations to our analysis. Here we note the two most important: Our long-term net benefit estimates are based on a single RCT at one institution, and are projected rather than observed directly. Thus they are inherently uncertain. But policymakers cannot wait decades to make informed investment decisions. The alternative of relying solely on observed short-term benefits and costs may lead policymakers to de-prioritize long-term investments, even when available evidence suggests they are a very good bet for society.

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