Benefits that Last:
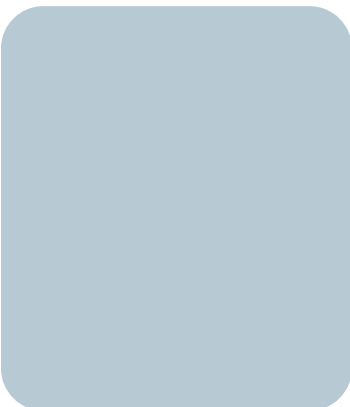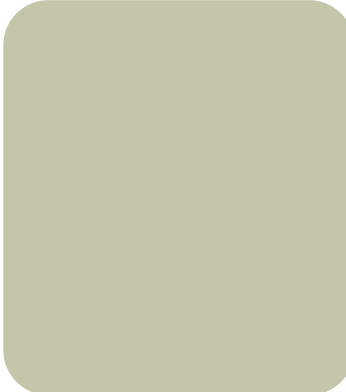
Long-Term Impact and Cost-Benefit Findings for Year Up

PACE
Pathways for Advancing
Careers and Education

Benefits that Last: Long-Term Impact and Cost-Benefit Findings for Year Up

A Pathways for Advancing Careers and Education (PACE) / Career Pathways Long-Term Outcomes Study Publication

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Overview

This report provides seven-year findings on the impacts and net societal benefits of Year Up, a training program for young adults aged 18-24 with high school credentials. The period it covers extends beyond the onset of the COVID-19 pandemic, affording an opportunity to compare the ensuing economic downturn's effects on treatment and control group members.

Run by an organization of the same name, the program operates from offices in nine cities. Year Up is a full-time, one-year program for young adults who are disconnected from work and school, or at risk of disconnection, and are motivated to do well in the program. Year Up is divided into two six-month phases: an initial training phase ("Learning and Development," or "L&D"), followed by an internship phase. It provides three main services:

(1) **Instruction** during the L&D phase in technical skills in selected occupations (IT, quality assurance, financial operations, project management, and customer service); business communication (written and spoken English); and professional skills (behaviors for success at work).

(2) Wrap-around **support services** during both phases, applying a "high expectations, high support" philosophy. Key strategies include behavior contracts (specifying expected professional behaviors), financial stipends, social support from staff and peers organized as learning communities, staff advisors and social workers, and outside mentors.

(3) Strong **connections to employment**, including work-focused learning during L&D, six-month internships at local employers, and intensive post-program employment services.

Year Up is one of nine programs included in the Pathways for Advancing Careers and Education (PACE) project sponsored by the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services. PACE is testing different strategies for helping low-income adults access career pathways in growing occupations.

Purpose

Year Up's mission is to close the "Opportunity Divide" – the gap between millions of young adults with low incomes and U.S. firms seeking to find well-qualified entry-level workers in technical fields. The program's twin goals are to help young adults access well-paying careers with good potential for upward mobility and address shortages of needed workers in growing occupations. The purpose of the research undertaken here was to evaluate whether Year Up was successful in increasing earnings and related outcomes, and whether its benefits exceeded its costs.

Research Questions

Analyses for the last PACE report on Year Up (Fein et al. 2021) showed large positive earnings impacts and net societal benefits that persisted at least five years. This new report addresses a number of questions provoked by the last round of findings:

- Would large earnings impacts persist two more years, and would previously observed differences between subgroups also continue?
- Would impacts radiate to other dimensions of financial security and well-being?
- Would the COVID-19-induced economic downturn have different effects on the earnings and Unemployment Insurance (UI) benefits received by members of the study's randomly assigned treatment and control groups?
- Would Year Up's net benefits continue to exceed its costs?

Key Findings

The new analyses provide the following answers to the above questions:

- **Year Up's large positive earnings impacts persisted undiminished to the end of the seven-year follow-up period.**

Average quarterly earnings in Quarters 23-24 (the report's single confirmatory outcome) were $1,895 higher for treatment than control group members (a 28 percent increase over the control group's $6,901 average quarterly earnings). Impacts of about $2,000 per quarter extended to the end of the seven-year follow-up period. Although large for nearly all subgroups and offices examined, the size of impacts varied to a considerable degree across groups, as in earlier analyses.

- **Favorable impacts extended to wider financial outcomes, but effects in other spheres of life were minimal.**

Increased earnings led to increases in household and personal income and decreases in housing insecurity, debt, and public benefit receipt. There were no effects on longer-term education credentials, psycho-social well-being, family formation, or self-assessed health.

- **The COVID-19 pandemic's economic effects were somewhat less detrimental for treatment than for control group members. As a result, favorable impacts increased for average earnings and emerged for the first time for UI benefits in the quarters immediately following the pandemic's March 2020 onset.**

When the pandemic began, study participants were at varying durations (22-28 quarters) from random assignment. Assessing pandemic-related shifts required reorganizing the data to analyze outcomes for calendar quarters. Compared to 2019, the treatment-control difference in average quarterly earnings increased by $472 and fell by $381 for UI benefits in the second quarter of 2020. Although these differences from 2019 persisted over the following year, they diminished in size and were no longer statistically significant after the third quarter of 2020.

- **The net benefits to society per participant rose from $15,349 in the five-year analysis to $33,884 for the seven-year period, representing a $2.46 return per dollar spent on Year Up.**

With two more years of undiminished earnings impacts and no additional costs, the net gain to society climbed to $33,884 per participant—the difference between a net benefit of $57,019 and a net cost of $23,135.

Methods

The study design involved random assignment of 2,544 eligible young adults to treatment and control groups. Year Up staff encouraged the former to enroll in the program but did not allow the latter to participate. The research team measured and compared average outcomes for the two groups over successive follow-up intervals. Data sources include: a follow-up survey conducted six years after random assignment and two sets of administrative records extending for seven follow-up years. The administrative data records consist of quarterly wage records from the National Directory of New Hires and college enrollment and credential records from the National Student Clearinghouse. The study also included a cost-benefit analysis.

Executive Summary

Millions of young adults finish high school but have difficulty obtaining the college degrees that increasingly are needed to land well-paying jobs.[1] Facing limited career prospects, many young adults with lower academic skills withdraw from the labor force.[2] Short spells of unemployment often lead to long-term disconnection and associated social and economic disadvantages.[3] Economic downturns tend to exacerbate these challenges.[4]

In principle, large-scale investments in training and career-building work opportunities could be critical in averting longstanding, as well as acute short-term, challenges facing young adults. But how can we ensure that those investments are the right ones?

This report provides further positive evidence on Year Up, a national program for young adults aged 18-24 with a high school diploma or equivalent in nine cities.[5] Operated by an organization of the same name, Year Up provides six months of full-time training in information technology (IT) and financial services occupations, followed by six-month internships at major companies. Abt Associates is evaluating Year Up as part of the Pathways for Advancing Careers and Education (PACE) project.[6]

Early PACE reports found that Year Up was well implemented, generated large, positive impacts on participants' earnings, and returned $1.66 in net benefits to society for every dollar in costs over the first five years (Fein and Hamadyk 2018, Fein et al. 2021). The present report extends these analyses to a seven-year follow-up period. It assesses the nature and sources of subgroup differences in impacts in greater detail than previous reports. The report examines also whether and how impacts changed after the onset of the COVID-19 pandemic, which triggered sharp reductions in service and retail jobs on which many young adults with low incomes rely.

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[1] See Binder and Bound (2019), Carnevale et al. (2018), Escobar et al. (2019), Groshen and Holzer (2019), Ross et al. (2018).

[2] See Millett and Kevelson (2018).

[3] See Lewis and Gluskin (2018), Millett and Kevelson (2018).

[4] See Atherwood and Sparks (2019), Banks et al. (2020), Li et al. (2019), Schwandt and von Wachter (2019, 2020a, 2020b), von Wachter (2020a).

[5] The cities are Atlanta, Boston, Chicago, New York, Providence, San Francisco, San Jose, Seattle, and Washington DC. For an extensive description and analysis of Year Up's design and implementation, see Fein and Hamadyk (2018). In addition to the ongoing core program, Year Up also runs a college-based version of its model (Fein et al. 2020) and is piloting a variety of other approaches. For more information on Year Up's current programs, see www.yearup.org.

[6] For more information on the PACE project, go to https://www.acf.hhs.gov/opre/project/pathways-advancing-careers-and-education-pace-2007-2018.

Year Up

Year Up serves young adults from low-income communities who are aged 18 to 24; have a high school diploma/equivalent; are motivated; and are able, with assistance and training, to overcome challenges and thrive in well-paying jobs. A national nonprofit organization, Year Up operates an array of programs that vary somewhat in design but share a common theory of change.

PACE is testing Year Up's original model, which it calls the "core program": a free-standing program operating in nine cities around the U.S.[7] In 2013-2014—the period that this study's sample enrolled in Year Up—the program served more than 3,500 young adults.[8]

Year Up begins with six months of intensive training for jobs in information technology (IT) and financial services. The program provides robust social and financial supports to foster retention. Training focuses on skills in three broad domains: *technical*; *professional* (e.g., workplace culture, communication, and personal conduct); and *foundational* (e.g., reasoning, English). With ongoing support from Year Up staff, participants then move into six-month internships, often at Fortune 500 firms.

Throughout, the program provides substantial supports and, through behavior contracts tied to stipends, sets high standards for professional conduct.

Year Up's engagement with employers is especially noteworthy. Although the program costs more than most public programs ($28,290 per participant), employers pick up three-fifths of the tab to support the internship phase of the program. This "skin in the game" creates additional incentives for companies to support interns' success. When interns succeed, companies benefit from work done during internships and from access to well-qualified hires.

The Study

Sponsored by the Administration for Children and Families within the U.S. Department of Health and Human Services, this evaluation utilizes a randomized controlled trial (RCT) design and includes implementation, impact, and cost-benefit studies.

In 2013-2014, local Year Up staff recruited and randomly assigned 2,544 eligible applicants to treatment and control groups. Staff encouraged treatment group members to enroll in Year Up (96 percent did so), while control group members were not allowed to participate. The sample

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[7]   Year Up administered locations in two of the nine cities (San Jose and San Francisco) jointly, and they are identified as a single office in the administrative data available for the PACE study. Accordingly, analyses of office-level impacts in this report apply to eight offices.

[8]   The number of Year Up participants in the research sample is roughly half this size, since each local office conducted random assignment during only two biennial recruitment cycles of the four that occurred during this period (see next section for details).

represents a full year's worth of enrollees in Year Up's nine core program offices.[9] The research team subsequently measured and compared average outcomes for treatment and control group members over time.

The present report analyzes impacts over the first seven years after random assignment, drawing on administrative and survey data. Administrative data sources include quarterly wage records from the National Directory of New Hires (NDNH) and college transcript records from the National Student Clearinghouse (NSC). The survey, conducted approximately six years after random assignment, measured a wide array of additional outcomes.[10]

An earlier PACE report (Fein and Hamadyk 2018) found that local Year Up offices fully implemented all program components and generated strong performance on related metrics. For example, staff diligently enforced Year Up's behavior contract: 96 percent of enrollees received at least one infraction, and 45 percent received 10 or more infractions. Retention was high, with 75 percent of treatment group members completing the program. Interviews and program documents indicate that the program was well managed; featured many best practices in service delivery; and fostered a cohesive, supportive culture.

Findings on Overall Impacts

A central question for this report was whether Year Up's positive earnings impacts would continue longer than five years. The new analyses, summarized in Exhibit ES-1, show that impacts extended at least two more years and showed no signs of diminishing at the end of this report's seven-year follow-up horizon.

Average quarterly earnings in Quarters 23-24 (the confirmatory outcome) were $1,895 higher for treatment than control group members (a 28 percent effect)—virtually unchanged since the $1,857 impact for Quarters 12-13 (confirmatory in Fein et al. 2021). While impacts persisted, average earnings for both groups plateaued in Quarter 23 and fell slightly over the next few quarters. Analyses of impacts for calendar quarters (discussed later in this summary) show a clear connection between the timing of this shift and the onset of the COVID-19 pandemic.

Although neither wage records nor six-year survey data show impacts on fractions employed in follow-up Years 6 and 7, there were strong positive effects on the types of jobs held and job quality. Survey analyses show that more treatment than control group members held full-time jobs, worked in Year Up target occupations, and received multiple job benefits. As at earlier follow-up junctures, employed treatment group members were substantially more likely than their control group counterparts to be working in the IT and business/financial service sectors, and less likely to be working in retail and other service sectors.

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[9]   An online random assignment tool assigned two applicants to Year Up for every applicant assigned to the control group. The total numbers assigned were 1,669 and 875, respectively. Final analysis samples are slightly smaller due to incomplete information for matching to administrative databases.

[10] The survey obtained a 66-percent response rate (68 percent for treatment and 62 percent for control group members). See Judkins et al. (2022) for details on non-response analysis and weighting.

Exhibit ES-1: Average Quarterly Earnings in Successive Follow-up Quarters by Treatment-Control Status
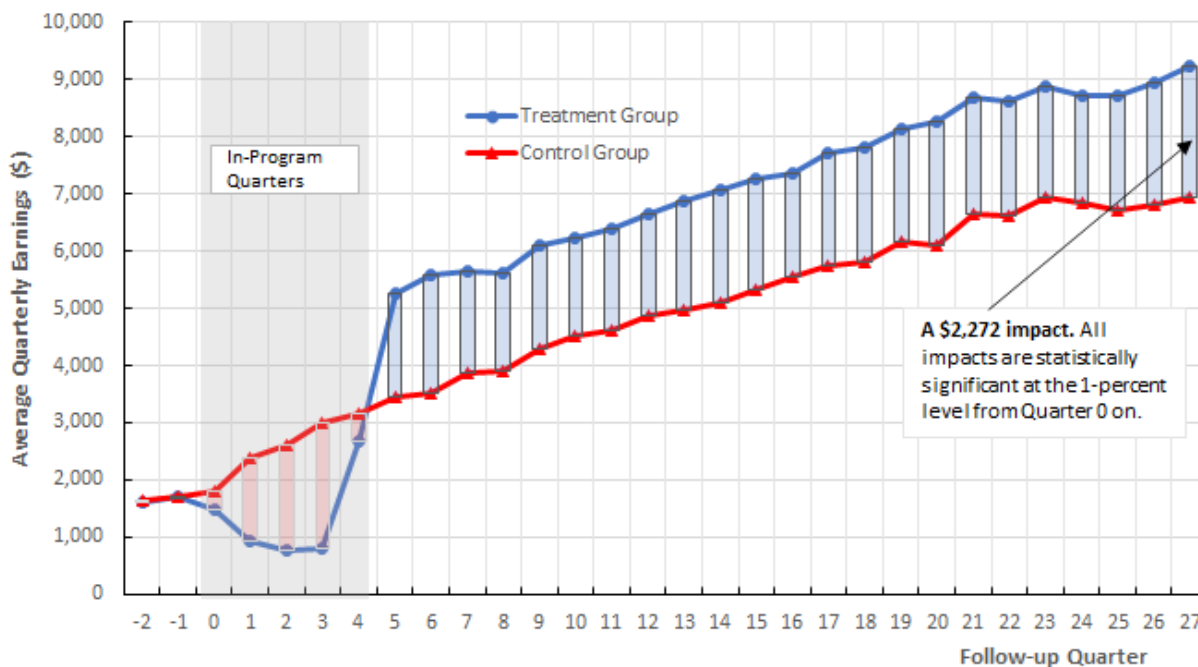
Source: Quarterly wage records obtained in a match to the National Directory of New Hires for 1,638 treatment and 858 control group members. See Supplemental Exhibit 1 for underlying statistics.

Another question was whether increased earnings would affect outcomes in other domains. The findings show favorable impacts on varying aspects of financial status, including household and personal income, the ability to handle a $400 emergency, and renting a house or apartment rather than living in someone else's home. The findings also show decreases in public benefit receipt and debt.

There were few impacts on non-financial outcomes, however. On the education front, although earlier reports documented increased receipt of short-term credentials and industry certifications, long-term analysis shows no effects on more substantial credentials. The analysis also detected no effects on several indices of psycho-social well-being, family formation, an index of life challenges, or self-assessed health.

Impacts for Subgroups

The long-term findings show large earnings impacts for nearly all subgroups and local offices examined. This analysis assessed subgroups differentiated by nine personal characteristics and compared impacts across Year Up's eight local offices.[11] Impacts on average quarterly earnings in Quarters 23-24 were at least $1,000 and statistically significant ($p<.05$) for all but one subgroup and all but one office.

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[11]   As noted earlier, although the program operates in nine cities, Year Up administers locations in two cities (San Jose and San Francisco) jointly and identifies them as a single office in the administrative data provided for this study.

The size of effects nonetheless continued to show marked differences for some characteristics. In Quarters 23-24, as at earlier junctures, young adults with better high school grades and some college benefited more than those with worse grades and no college experience. The findings also suggest a continuing advantage for young adults identifying as non-Hispanic White/another race compared to those identifying as non-Hispanic Black or Hispanic.[12] Although depression had no bearing on earnings impacts in earlier analyses, in Quarters 23-24 impacts for young adults reporting the most depressive symptoms at baseline were smaller than for those who had reported fewer symptoms. Impacts also differed across local offices, reflecting mainly an especially large impact in one office.[13]

Signs that impacts may have diverged for some characteristics (e.g., depression) over time prompted formal testing of whether changes in differences were statistically significant. The results suggest that the apparent stability in Year Up's overall impacts is to a degree the result of countervailing trends for some subgroups. Most notably, impacts *grew* for sample members who at baseline were in the oldest age group, had the most college experience, and reported low to moderate depressive symptoms but *declined* for their younger, less college-experienced, and higher-depression counterparts.[14]

The persistence of marked subgroup differences also raises the question of whether disparities reflect influences specific to each characteristic or influences shared by multiple characteristics. To test for shared influences, we re-estimated subgroup impacts for each characteristic while holding differential effects on selected sets of other characteristics constant. Differences in impacts on both baseline education measures (high school grades and college experience), depressive symptoms, and local office were virtually unaffected even after controlling for the entire set of characteristics in the subgroup analysis. Differences by race-ethnicity also remained large but narrowed somewhat and were no longer statistically significant. The practical implication is that multiple strategies may be needed to address the factors underlying disparities in impacts.

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[12] Young adults identifying as "another race" represent a majority of the White/another race subgroup. Given similar outcomes for this (mostly Asian) group and Whites, we combined the two categories to improve statistical power in subgroup analysis. Although race-ethnicity differences were consistently large, they fell slightly above the 10 percent significance level in the main specifications for impacts on earnings in Quarters 23-24. Because tests did meet the 10-percent standard in closely related analyses using slightly different specifications (e.g., multivariate subgroup analysis summarized below), we take the results as strongly suggestive of race-ethnicity differences.

[13] This office's large effects may owe to its location in a region with a high concentration of well-paying tech jobs.

[14] Impacts also increased substantially in one office while decreasing in the remaining offices. The office whose impacts increased also was the office with the largest impacts at earlier follow-up junctures.

Effects of the COVID-19 Downturn

The COVID-19 pandemic triggered extensive job losses in the initial months following its March 2020 onset.[15] Although many jobs returned over the course of the year, unemployment remained above pre-pandemic levels at least through June 2021 (the end of this report's observation period). Unemployment Insurance (UI) claims also soared—the result of heavy job losses and the extension of UI coverage to gig workers in the March 2020 Coronavirus Aid, Relief, and Economic Security Act (CARES) Act.[16,17]

Job losses were largest in the retail and hospitality occupations and substantially smaller in occupations that could be done from home (and particularly industries that benefited from increased demand for technology and other stay-at-home services).[18] In moving young adults into jobs in IT and financial services and away from retail, food service, and other hard-hit sectors, we hypothesized that Year Up might have conferred a degree of protection against the pandemic downturn.

Assessing pandemic-related shifts required reorganizing the data to analyze outcomes for calendar quarters, since successive study cohorts experienced onset at varying durations of follow-up (i.e., quarters since random assignment). The findings support our expectation for protective effects.

After 2020Q1, average earnings declined, and average UI benefits rose, in both the treatment and control groups (left-side panels of Exhibit ES-2). But the shifts were smaller for treatment than control group members. As a result, earnings impacts increased from 2019 levels while negative UI benefit impacts emerged (right-side panels of Exhibit ES-2). Although these influences were large and statistically significant only in the first two post-onset quarters, impacts remained elevated at least through 2021Q2, the end of the current analysis period.[19] The shifts in impacts for earnings (positive) and benefits (negative) were roughly offsetting when averaged from 2020Q2 through 2021Q2.

Subgroup analyses suggest that pandemic influences were somewhat greater for young adults with stronger educational backgrounds and for those identifying as non-Hispanic White/another race, compared to young adults with weaker educational backgrounds and those identifying as Black or Hispanic.

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[15]   For employment trends through June 2021, see https://www.bls.gov/news.release/pdf/empsit.pdf.

[16]   For unemployment claims and receipt in 2020-2021, see https://www.dol.gov/ui/data.pdf.

[17]   The CARES Act legislation can be found at https://www.congress.gov/bill/116th-congress/house-bill/748.

[18]   See Brodeur et al. (2021) and Hershbein and Holzer (2021).

[19]   Although differences from 2019 levels remained elevated, they diminished and were not statistically significant after 2020Q2 for earnings and after 2020Q3 for UI benefits. Elevated impacts on rates of UI receipt (as distinct from average benefits amounts) remained statistically significant through 2021Q2, suggesting that persisting differences in benefit amounts are real.

Exhibit ES-2: Impacts on Average Quarterly Earnings and Unemployment Benefits by Calendar Quarter (Post-COVID Onset Quarters Shaded)
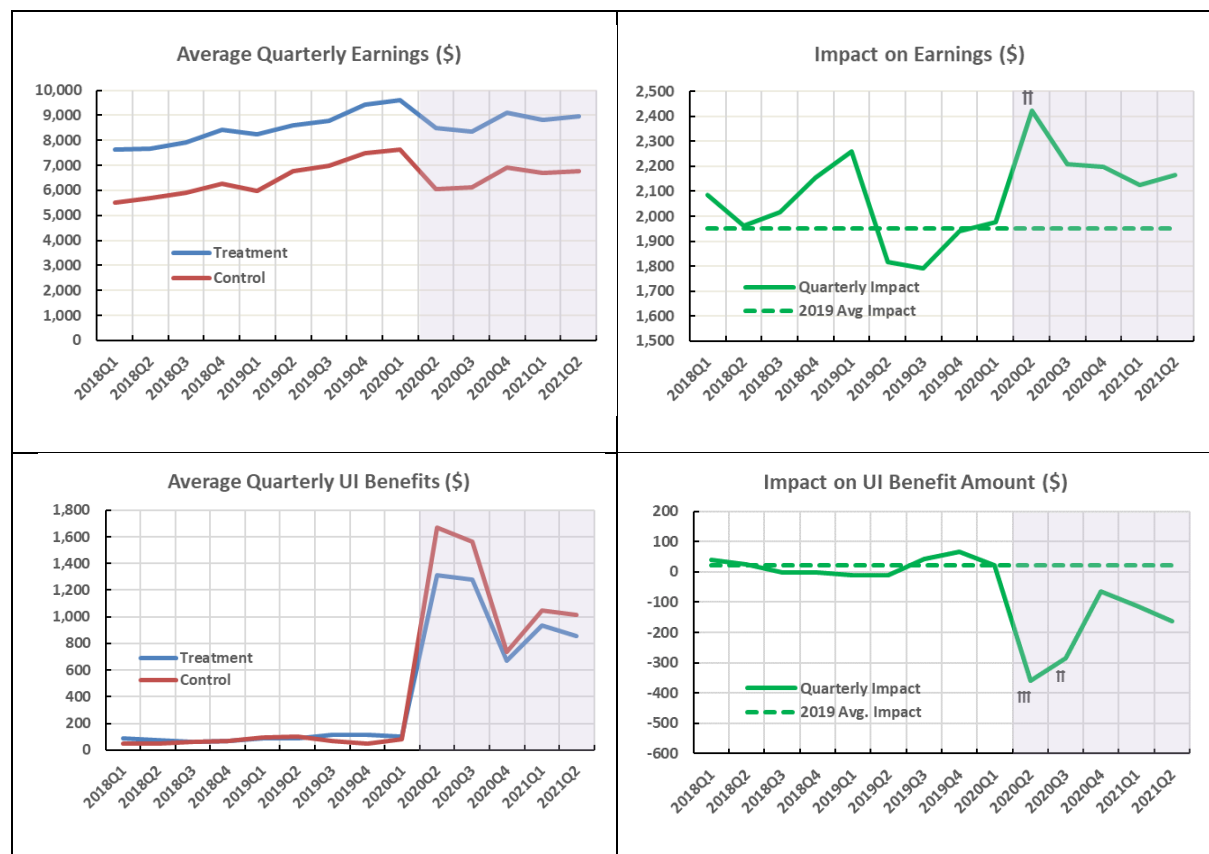
Note: Cross symbols indicate whether the *difference* between the 2019 average impact and each quarterly impact from 2020Q1 on is statistically significant at the: ⱡ 10-percent, ⱡⱡ 5-percent level, ⱡⱡⱡ 1-percent level. Supplemental Exhibit 5 provides the underlying statistics for this exhibit.

Costs and Benefits

Results show that Year Up continued to be financially worthwhile for society overall—as well as for participants. With financial benefits continuing and no additional program costs, the net return to society for each dollar of program costs climbed from $1.66 in the first five years to $2.46 over the seven-year period. The net gain to society was $33,884 per participant—the difference between an average benefit of $57,019 and an average cost of $23,135.

Key costs in the analysis include spending on Year Up services and on other education and training services and related supports. Key benefits include young adults' earnings; related (e.g., fringe) benefits and taxes; Year Up stipends; and financial returns to partner firms that hired program interns after Year Up.

Since measuring actual returns to employers was beyond the scope of this study, we selected a 50 percent return on employers' average payment of $16,118 per treatment group member as

the base case for the main cost-benefit estimates.[20] This figure seemed consistent with employers' dual motives – financial and social – for partnering with Year Up, as discerned in interviews with a dozen employers.[21]

But net benefits to society remained positive when we assumed employer returns ranging from zero ($25,825 net benefit to society) to 115 percent ($44,361). The first estimate shows that society would more than break even if Year Up was entirely funded by government or philanthropy (and employers did not benefit). The second estimate shows that societal benefits will be quite large when internship investments are profitable for companies—the scenario motivating Year Up's efforts to provide high-value "customer solutions" to employers.

These cost-benefit estimates are likely to understate Year Up's full benefits. The persistence of large earnings impacts through the end of this period suggests that lifetime benefits could grow quite large. The analysis also does not count the monetary value of any wider societal benefits, such as reduced substance abuse, reduced crime, and improved child well-being. Though plausible, the study has not to date measured impacts on such outcomes.

Discussion

Year Up's large sustained positive impacts and positive net benefits to society raise important questions about whether and how the program might be scaled. The breadth of impacts – seen in virtually all subgroups and offices examined – imply that the program might be effectively expanded to a larger number of the kinds of young adults it currently serves. Rough estimates suggest that the total size of the current target population is easily in the hundreds of thousands.[22, 23]

Maintaining fidelity to the program design and performance standards while substantially increasing the program's scale will be challenging. Scaling efforts are likely to benefit from

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[20] The average employer payment per intern was $24,700. The $16,118 figure averages this amount over the entire treatment group—including participants who dropped out before reaching the internship phase.

[21] For example, in explaining his firm's motives, one employer led with the importance of helping the local community but went on to say "We're an investment company. If it wasn't worth it, we wouldn't do it." The research team interviewed 12 employers for the implementation study. For results, see Fein and Hamadyk (2018).

[22] Census Bureau estimates show 6.1 million 18-24-year-olds living below 150 percent of the poverty line in 2019. Conservatively assuming that half had high school credentials and that one in five of the latter would meet Year Up's screening criteria, a rough estimate might be 600 thousand young adults eligible under the current program targeting approach. See https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.html#par_textimage_24.

[23] Upscaling proposals should be designed to minimize the possibility that hiring from programs like Year Up will displace some other low-income workers from the same jobs. In our last report (Fein et al. 2021) we noted two features of Year Up's approach that would go a long way to minimizing displacement if incorporated in upscaled programs. First, Year Up targets fields that normally are not accessible to low-income adults. Second, like other sectoral programs, Year Up aims to address labor shortages in fast-growing occupations that otherwise might go unfilled.

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preserving Year Up's robust organizational and management systems and its strategies for creating revenue-generating internships (see Fein and Hamadyk 2018).

Findings from this report's subgroup analyses suggest that some expansion might be accomplished with relatively little change to the Year Up model. While smaller for more disadvantaged groups, impacts were nevertheless large for all but one subgroup in the current target population. This hints that Year Up's eligibility criteria may not have reached the limits of the population that could benefit. Similarly, substantial impacts for older participants in the 18-24-year range indicate that the program might be effectively expanded to somewhat older young adults.[24]

Further expansion is likely to require more substantial adaptations to the model. For young adults with weaker skills and more life challenges, helpful changes might include adding an upfront phase for skills remediation, high school completion, and addressing personal and family challenges.[25] For those interested in fields other than IT and financial services, the program could add tracks in a wider range of occupations.[26] Increased use of remote learning and telework – applying lessons from the pandemic – might allow Year Up to reach young adults living outside the urban areas it has served to date.

In addition to expanding beyond the current target population it may be possible to broaden impacts within this population. Subgroup differences in impacts hint at some of the factors that constrain impacts and that refinements in services might address. For example, local offices might provide enhanced academic coaching to participants with weaker high school performance[27] and boost screening and follow-up for mental health issues. Further steps to help participants navigate, and corporate partners understand and address, the special challenges facing members of minority groups in the workplace might help in addressing smaller impacts for these groups.

Although substantial net benefits to society provide a strong financial case for scaling the version of Year Up tested for PACE, the costs of doing so for hundreds of thousands of young adults would run into billions of dollars (even assuming employers continued to cover over half of costs). A number of recent policy proposals call for increased public financing for evidence-based programs like Year Up. But proposed funding levels have been modest.

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[24] Year Up recently instituted pilots serving 18-30-year-olds in several offices.

[25] Relatedly, Bloom and Miller (2018) have suggested that some existing programs that focus on more highly disadvantaged populations might be reconceived as on-ramps to Year Up.

[26] Year Up already has added training in a number of different occupations, generally involving more specialties in the information technology and business and finance arenas. Examples include trainings in cyber security, software development, and sales and customer support.

[27] Attesting to the potential contributions of enhanced coaching, an RCT involving Year Up's next-generation Professional Training Corps found that modest refinements in existing coaching practices (aimed at increasing attention to academic issues) generated a 10-point increase in the fraction of participants reaching the internship phase (Fein et al. 2020, Maynard et al. 2020).

In response, Year Up has launched a number of initiatives to improve the program's scalability by lowering its costs and leveraging capacity of other institutional systems. One such effort, the Professional Training Corps (PTC) program, is a college-based version of the model that utilizes college facilities and instructors and reduces the intensity of some components (Fein et al. 2020). PTC spread quickly after its 2012 launch, and by early 2020 was serving more young adults than the free-standing core program evaluated for PACE.

The rapid transition to remote instruction, coaching and internships forced by the pandemic also is potentially opening doors to lower-cost modes of service provision. Seeing these formats as more conducive to scaling, Year Up plans to continue to operate in hybrid format as the pandemic recedes. Testing is needed to assess whether these formats can match the effectiveness of the version tested for PACE, with its strong emphasis on in-person interaction.

Finally, in addition to scaling Year Up directly, modifications incorporating signature Year Up strategies in other workforce programs could be worth testing. This report's concluding chapter identifies some of the more salient gaps between Year Up and other programs that might be addressed.

Open Questions

This study's strong positive findings on Year Up raise a host of important topics for future research. While some questions can be addressed through extended analyses of the PACE sample, others will require new studies. For the current sample, key questions include:

- How much longer will Year Up's earnings impacts continue?

- Do impacts for subgroups continue to diverge? Do more effects emerge in other life domains in the long run?

- What are the typical sequences that treatment and control group members follow in their respective career pathways?

- What are the full net benefits of Year Up for society when projected over participants' lifetimes?

Beyond the current sample, new studies testing the effects of individual Year Up components, newer Year Up models, and incorporating selected Year Up strategies in other workforce programs all would be valuable. A rigorous, systematic, and well-planned research program is needed to guide such efforts.

1.   Introduction

As opportunities have grown for young adults with college degrees in recent decades, job prospects for those without postsecondary credentials have stagnated or declined.[28] With few opportunities for well-paying jobs, many young adults with lower skills withdraw from the labor force.[29] Short spells of unemployment often lead to long-term disconnection and associated social and economic disadvantages.[30] Tax revenues are diminished, and employers are deprived of millions of workers needed to close skills gaps in growing industries.[31]

Negative long-term effects tend to be much worse for young people entering the labor market during economic downturns, especially when they lack a college degree.[32] The effects radiate to other domains, including poorer health and higher mortality.[33]

In principle, large-scale investments in training and career-building work opportunities could be critical in addressing longstanding, as well as shorter-term, challenges facing young adults. But how can we ensure that those investments are the right ones?

This report provides encouraging evidence on Year Up, a national program for young adults aged 18-24 with a high school diploma or equivalent in nine cities. Operated by an organization of the same name, Year Up provides six months of full-time training in information technology (IT) and financial services occupations, followed by six-month internships at major companies. Abt Associates is evaluating Year Up as part of the Pathways for Advancing Careers and Education (PACE) project.[34]

Early PACE reports found that Year Up was well implemented, generated large, positive impacts on participants' earnings persisting at least five years, and returned $1.66 in net benefits to society for every dollar in costs. The present report extends analysis to a seven-year follow-up period. Among other things, it analyzes in greater depth the marked disparities in impacts across subgroups seen in earlier reports. And it assesses whether impacts on earnings and unemployment benefits changed after the onset of the COVID-19 pandemic.

Beginning in March 2020, the pandemic triggered sharp reductions in employment, with particularly large effects on jobs that could not be done from home—primarily in the service and

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[28]   See Binder and Bound (2019), Carnevale et al. (2018), Escobar et al. (2019), Groshen and Holzer (2019), Ross et al. (2018).

[29]   See Millett and Kevelson (2018).

[30]   See Lewis and Gluskin (2018), Millett and Kevelson (2018).

[31]   See Belfield et al. (2012), Lewis and Gluskin (2018).

[32]   See Atherwood and Sparks (2019), Banks et al. (2020), Li et al. (2019), Schwandt and von Wachter (2019, 2020a, 2020b), von Wachter (2020a).

[33]   See Fan et al. (2018), Giudici and Morselli (2019), Schwandt and von Wachter (2019, 2020a, 2020b), von Wachter (2020a).

[34]   For more information on the PACE project, go to https://www.acf.hhs.gov/opre/project/pathways-advancing-careers-and-education-pace-2007-2018.

retail industries. Unemployment rates remained high – especially among young adults, racial and ethnic minority groups, and persons with lower educational attainment – well into 2021, even as other indicators of economic activity rebounded.[35]

Year Up's success in connecting young adults with higher-wage jobs in the IT and finance sectors prior to the pandemic raises the question of whether it also may have helped participants to weather the subsequent economic downturn.

This chapter briefly describes the PACE project (Section 1.1), gives an overview of the Year Up program (1.2), summarizes the evaluation design (1.3), reviews key findings from past reports (1.4), and identifies the major questions framing this report (1.5).

1.1   Pathways for Advancing Careers and Education

Year Up and eight other training programs (see text box) are part of the Pathways for Advancing Careers and Education (PACE) project, a national evaluation sponsored by the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services. The programs variously incorporate elements from a career pathways framework that PACE is using to organize and understand findings.

The basic assumption underlying the *career pathways framework* is that postsecondary education and training should be organized as a series of manageable steps leading to successively higher credentials and employment opportunities in growth occupations (Fein 2012).

The framework identifies services that can help to make these steps manageable and support career advancement, including (1) academic and non-academic assessment; (2) innovative basic skills and occupational skills instruction; (3) academic and non-academic supports; and (4) strategies to connect training participants and employers. Programs within the career pathways framework vary

Other Programs in PACE

- **Bridge to Employment in the Healthcare Industry**, San Diego Workforce Partnership, County of San Diego, CA*

- **Carreras en Salud**, Instituto del Progreso Latino, Chicago, IL^

- **Health Careers for All**, Workforce Development Council of Seattle–King County, Seattle, WA*

- **Integrated Basic Education and Skills Training (I-BEST) program** at three colleges (Bellingham Technical College, Everett Community College, and Whatcom Community College), Washington State

- **Pathways to Healthcare**, Pima Community College, Tucson, AZ*

- **Patient Care Pathway Program**, Madison College, Madison, WI

- **Valley Initiative for Development and Advancement** (VIDA), Lower Rio Grande Valley, TX

- **Workforce Training Academy Connect**, Des Moines Area Community College, Des Moines, IA

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*Programs funded through ACF's Health Profession Opportunity Grants (HPOG) Program.

^Program partially HPOG-funded.

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[35]   For early analyses of the pandemic's labor market impacts, see Brodeur et al. (2021) and von Wachter (2020b). For analyses of disparities, see Hershbein and Holtzer (2021) and Milovanska-Farrington 2021). For descriptive statistics on trends through June 2021, see https://www.bls.gov/news.release/pdf/empsit.pdf.

widely in the levels of training they provide themselves or otherwise support. Training steps might range from instruction in basic academic and social skills needed to enroll in occupational training to a four-year college degree and beyond.

Compared to other PACE programs, Year Up is the only one limited to young adults and the only multi-site national program. It also provides a wider range of services, as described in the next section.

1.2   The Year Up Program

Year Up serves young adults from low-income communities who are aged 18 to 24, have a high school diploma/equivalent, are motivated, and who, with assistance, can overcome challenges and successfully enter careers in fast-growing technical occupations. A national nonprofit organization, Year Up operates an array of programs that vary somewhat in design but share a common theory of change.[36]

PACE is testing Year Up's original model—which it calls the "core program"—a free-standing program operating in nine cities around the U.S.[37] In 2013-2014—the period that this study's sample enrolled in Year Up—the program served more than 3,500 young adults.[38]

During the first six months of the program—the "Learning and Development Phase"—participants attend courses at Year Up full-time. The focus of technical training varies by Year Up office and study cohort. Fields include information technology (IT, the most common emphasis), business operations, financial operations, software development, and sales and customer support. General skills training puts a strong emphasis on professional (i.e., "soft") skills and written and spoken English (with a strong focus on business communications). Year Up sites partner with local colleges to arrange for college credit for Year Up coursework.

Year Up's "high support, high expectations" model provides extensive services and sets high standards for professional behavior. Each incoming cohort of young adults is organized into learning communities of about 40 participants and staff to foster supportive social connections. All participants receive advising from Year Up staff members, and every staff member is expected to serve as a student advisor/coach in addition to other duties. Participants also receive mentoring from outside professionals working in related occupations. Each local office

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[36]   For an in-depth description of the original Year Up program tested in PACE, see Fein and Hamadyk (2018).

[37]   The cities are Atlanta, Boston, Chicago, New York, Providence, San Francisco, San Jose, Seattle, and Washington DC. Year Up administered locations in two of the nine cities (San Jose and San Francisco) jointly, and they are identified as a single office in the administrative data available for the PACE study. Accordingly, analyses of office-level impacts in this report apply to *eight* offices. In addition to its original program (the model tested in PACE), Year Up also runs a college-based version of its model in a wider set of locations (see Fein et al. 2020).

[38]   The number of Year Up participants in the research sample is roughly half this size, since each local office conducted random assignment during only two biennial recruitment cycles of the four that occurred during this period (see Section 1.3 for details).

maintains a team of social workers who provide direct services and referrals to help participants address varied life challenges.

Participants receive weekly stipends to help cover transportation and other program-related expenses. Stipends were $150 in the first, and $220 in the second, phase of the program during the study period. Participants sign a formal contract specifying standards for professional behavior. Infractions trigger stipend reductions and can lead to dismissal from the program.

In the second half of the year—the "Internship Phase"—participants intern at local firms, often Fortune 500 companies. They work at their internship sites full-time for four-and-a-half days a week. Participants return to Year Up each week for a half-day skills workshop during which they share their internship experiences and plan for education and careers after graduation from the program. Towards the end of internships, the emphasis on job search and placement intensifies. Active efforts to support job search and placement continue for up to four months after graduation.

At $28,290 per participant, the program is among the most expensive workforce programs for low-income youth and adults. To finance these costs, Year Up has implemented an innovative strategy: employer payments for interns cover 59 percent of costs. Grants from foundations and private donors cover most of the remainder (39 percent), and reliance on governmental funding is minimal.

1.3   Evaluation Design

The evaluation is based on a randomized controlled trial (RCT) design. From January 2013 to August 2014, local Year Up staff in the core program's eight local offices[39] randomly assigned 2,544 eligible applicants to one of two groups: a treatment group that was encouraged to enroll in Year Up or a control group that could not access the program (but could access other services available in the community).[40]

As detailed in this section, the research team collected follow-up data from both groups and estimated impacts by calculating the difference in average values between groups for each outcome of interest. The evaluation's experimental design ensures that estimated impacts can be attributed to access to the program and not to unmeasured differences in characteristics or

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[39]   Though the program serves young adults in nine cities, operations in two locations (San Francisco and San Jose) are administered by a single office.

[40]   Year Up enforced a three-year embargo on participation for control group members. Program records show that just nine control group members were admitted to the program during the embargo period. (These admissions arose from differences in identification information causing failure to match to earlier applications.) An additional 20 control group members applied and were admitted to Year Up after the end of their embargo periods. Together, the 29 cases represent a very small fraction – 3.4 percent – of the entire control group. Assuming program impacts for these cases were similar to those that would have obtained had they been assigned to the treatment group, a standard cross-over adjustment (Orr 1999) suggests that the observed $1,895 impact on this study's confirmatory outcome (average quarterly earnings in follow-up Quarters 23-24) falls slightly below the $1,962 that would have observed absent cross-over--$1,895/(1-.034). For simplicity, and because the differences are so small, analyses in this report do not adjust for cross-over.

external circumstances. Random assignment ran on a staggered basis across offices during this period, with each office enrolling young adults from two cohorts (representing a full year's worth of applicants) in the study.

The remainder of this section describes the study's hypotheses, data sources, and statistical analyses in more detail.

1.3.1 Hypothesis Testing

As the number of statistical tests increases, so too does the likelihood that some impacts will be large by chance.[41] An essential principle in the PACE analysis plan is to conduct the statistical tests in a way that minimizes the number of false positive impacts due to chance. To address this risk, the project established three categories of hypotheses: confirmatory, secondary, and exploratory. The specific hypotheses and outcomes listed below address Year Up's theory of change (discussed in earlier reports) and the research questions appearing at the end of this chapter.

Confirmatory hypotheses focus on the minimum number of critical outcomes needed to determine whether the program is producing the results expected at a given follow-up duration. For the current report, the research team prespecified a single confirmatory outcome: *average quarterly earnings in the 23rd and 24th follow-up quarters*.

Secondary hypotheses address a limited number of additional indicators of program success for which we expect impacts in a particular direction. Secondary outcomes in the employment domain are *average quarterly earnings of $9,100 or more in the 23rd and 24th follow-up quarters*; *average total earnings in follow-up Years 2-7, working full-time, working in an occupation the program targeted, working in a job providing a robust array of benefits,* and *access to supportive career networks*. The $9,100 threshold--the quarterly earnings generated by sustained full-time (35+ hours/week) employment at $20/hour—provides a proxy for the minimum a "good" job should pay.[42] Years 2-7 correspond to the period when we expect earnings impacts to be positive—the period following the initial year when most treatment group members are in the program and not working. A second set of secondary outcomes captures broader aspects of financial well-being, including: *the ability to handle a financial emergency of $400, receipt of public benefits, extent of financial distress,* and *total debt*.

Exploratory hypotheses address a larger number of possible impacts. Examples of exploratory outcomes include *employment and earnings in a variety of years and quarters*; *college enrollment and credential receipt; various aspects of financial well-being;* and *health, stress, living arrangements,* and *childbearing*.

The research team published analysis plans for Year Up and other PACE sites on the Open Science Framework website and registered confirmatory and secondary outcomes and methods

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[41] This risk is known as the "multiple comparisons" problem.

[42] Carnevale et al. (2017) use a very similar threshold to define "good" jobs for workers under age 45: annual earnings of $35,000 or above. (For older workers, their threshold increases to $45,000.)

before beginning the impact analysis.[43] This pre-specification publicly committed the research team to declared hypotheses. It aligns with ACF's commitment to rigor, relevance, transparency, independence, and ethics in the conduct of evaluations.[44]

1.3.2   Data Sources and Analysis Approach

The project collected data from several sources to measure sample members' characteristics at the point of random assignment (i.e., "baseline") and subsequent outcomes. Baseline data serve both to improve the quality of impact estimates and identify subgroups for subgroup analysis.

Baseline surveys. All study participants completed two forms just prior to random assignment: a Basic Information Form, which captured demographic information, family characteristics, educational history, and work and earnings information; and a Self-Administered Questionnaire that collected more sensitive personal information.[45] The research team used the baseline data for regression adjustment of impact estimates, investigation of differential survey non-response, and subgroup analysis.[46]

Six-year follow-up survey. This survey measured participant outcomes and program impacts on employment progression, educational attainment, current employment conditions, student debt, financial well-being, and other life circumstances six years after random assignment. The response rate was 66 percent overall, 68 percent for the treatment group, and 62 percent for the control group.[47,48]

Earlier follow-up surveys. For some outcomes, measures blend six-year survey data with data from the short-term (18-month) and intermediate-term (three-year) follow-up surveys. For example, the measure *received any credential since random assignment* combines data from the first follow-up survey (receipt of certifications and licenses from institutions other than schools earned in the short term) with data from the second follow-up survey (school-issued credentials during the first three years after random assignment and credentials issued by other authorities after 18 months but before 36 months) with data on credentials reported in the third follow-up survey.

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[43]   See https://osf.io/s97jt/

[44]   ACF's Evaluation Policy is available at: https://www.acf.hhs.gov/opre/report/acf-evaluation-policy

[45]   Because the Self-Administered Questionnaire asked for personal information (criminal records, psycho-social skills, social support, and personal and family challenges), study participants filled out a paper form and then placed it in a sealed envelope that program staff sent to Abt Associates for data entry.

[46]   For definitions of baseline characteristics and details on regression adjustment, see Technical Appendices A and B, respectively, in Judkins et al. (2022).

[47]   The survey sample includes 1,119 treatment and 534 control group respondents. The median interview occurred 70 months after random assignment.

[48]   The full survey instrument is available at https://career-pathways.org/wp-content/uploads/2020/11/PACE-72-Month-Follow-up-Survey_02-06-2018.pdf and https://www.reginfo.gov/public/do/PRAViewIC?ref_nbr=201802-0970-010&icID=227184.

Administrative records. The report draws on data from two administrative records systems—the National Directory of New Hires (NDNH) and the National Student Clearinghouse (NSC).

The NDNH aggregates wage records reported on a quarterly basis to states by employers per Unemployment Insurance program requirements. These records are a key source for earnings and employment data in this report. Maintained by the federal Office of Child Support Enforcement within ACF, NDNH wage records cover most private employers as well as the federal (civilian and military) and state and local workforces. This report draws on matches of the study sample to NDNH records in July and December 2021.[49]

The NSC collects data on student enrollment, degrees earned, and other credential completion from most U.S. institutions of higher education.[50] NSC data provide key measures of college enrollment and credential receipt for the report and figure into certain technical data adjustments.[51] Like most administrative data, the underlying records are limited in coverage and content in accordance with the administrative system's purposes.[52] This report draws on an August 2021 match of the study sample to NSC records.

Analysis approach. As mentioned earlier, the analysis estimates Year Up's impact as the regression-adjusted difference in average values in the treatment and control groups for each outcome.[53] Statistical testing assesses whether impacts are larger than could be expected by chance at the one, five, and ten percent significance levels. Tests for confirmatory and secondary outcomes are one-tailed since these hypotheses lie in one direction. Tests for exploratory outcomes are two-tailed.

The study's goal was to estimate the impacts of Year Up's national program. Since the study included all program offices, we did not adjust standard errors to account for variation in effects across offices (as would be needed to generalize from a sample to all offices). To get an idea of the program's potential effectiveness if expanded to *new* sites, we re-estimated standard errors with a cross-office variance term for key outcomes (specifically, the earnings impacts reported in Exhibit 2.1). Standard errors increased, as expected—by a factor ranging from 1.5 to 2.0—but all earnings impacts remained highly significant ($p<.001$).

Subgroup analyses use the same methods to estimate impacts for subgroups of interest within the overall sample. Testing assesses, first, whether observed differences between subgroups

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[49] Appendices D.1 and D.2 in Judkins et al. (2022) provide additional details.

[50] Designed to aid the administration of student loan programs, NSC data also lets researchers study college access, persistence, and credential receipt.

[51] Appendix B.4 in Judkins et al. (2022) describes these adjustments, mainly involving nonresponse analysis and weighting.

[52] For example, though NSC's coverage is generally high for public and non-profit colleges, it is lower for for-profit colleges.

[53] To minimize any effects of chance differences arising at random assignment and improve the precision of impact estimates, estimation procedures use regression adjustment to control for baseline characteristics (see Judkins et al. 2022, Appendix A.2, for details).

are larger than expected by chance and, second, whether impacts for each subgroup differ from zero.

The PACE analysis plan called for analyses of the effects of the COVID-19 pandemic on program impacts where such effects seemed possible. These analyses, described in Chapter 4, involved: 1) assessing shifts in levels and impacts for key outcomes (earnings, employment, and unemployment benefit amounts and receipt) across calendar quarters preceding and following the pandemic's onset, and 2) testing for subgroup differences in such influences.

1.3.3   Characteristics of Study Participants

Exhibit 1-1 describes the study sample at the point of random assignment. Results show that random assignment produced well-balanced treatment and control groups. Of 28 characteristics tested, only one (parent's education) shows a statistically significant difference—a result that easily could be due to chance.

Exhibit 1-1:   Characteristics of the Study Sample at Enrollment

Characteristic	All Participants	Treatment Group (T)	Control Group (C)	*p*-Value of Difference (T−C)
Age (%)				.811
18 to 20	42.8	43.2	42.1	
21 to 24[a]	57.2	56.8	58.0	
Female (%)	41.0	41.0	41.0	.992
Race-Ethnicity (%)				.720
Hispanic, any race	31.4	31.6	31.1	
Black, non-Hispanic	53.7	53.6	53.8	
White, non-Hispanic	5.5	5.1	6.2	
Another race, non-Hispanic	8.8	9.7	8.9	
Living Arrangements (%)				.452
Not living with spouse/partner or children	86.6	87.1	85.8	
Not living with spouse/partner, living with children	6.5	6.6	6.2	
Living with spouse/partner, not living with children	4.5	4.2	5.1	
Living with spouse/partner and children	2.4	2.1	2.9	
Living with Parents (%)	68.4	68.8	67.7	.564
At Least One Parent with Some College (%)	55.4	54.0	58.0	.064
High School Grades (%)				.249
Mostly A's	10.4	10.0	11.1	
Mostly B's	49.4	48.6	50.8	
Mostly C's or below	40.3	41.4	38.1	
Educational Attainment (%)				.791
High school diploma or equivalent [b]	52.4	51.7	53.8	
Less than 1 year of college	22.1	22.3	21.5	
1+ years of college	22.5	22.9	21.8	
Associate degree or higher	3.1	3.1	2.9	
Received Vocational or Technical Certificate or Diploma (%)	18.4	18.9	17.3	.349
Career Knowledge Index (mean)	0.46	0.46	0.47	.625

Characteristic	All Participants	Treatment Group (T)	Control Group (C)	p-Value of Difference (T−C)
Psycho-Social Indices (means)				
Academic discipline	5.28	5.28	5.27	.671
Training commitment	5.52	5.52	5.50	.232
Academic self-confidence	5.05	5.04	5.07	.226
Emotional stability	5.33	5.33	5.32	.987
Social support	3.35	3.34	3.36	.135
Stress	2.20	2.21	2.18	.315
Depression	1.59	1.60	1.57	.103
Family Income Last Year (%)				.533
Less than $15,000	37.1	37.3	36.7	
$15,000 to $29,999	25.7	25.0	27.1	
$30,000 or more	37.2	37.7	36.2	
Family Income Last Year (mean $)	27,021	27,287	26,528	.443
Public Assistance in Past 12 Months (%)				
Received WIC or SNAP	32.8	32.6	33.1	.756
Received public assistance or welfare	6.6	6.3	7.3	.352
Financial Hardship in Past 12 Months (%)	29.7	29.4	30.3	.578
Current Work Hours (%)				.490
0	47.6	47.9	47.1	
1 to 19	10.5	10.3	11.0	
20 to 34	26.7	27.4	25.3	
35 or more	15.2	14.5	16.6	
Expected Work Hours in Next Few Months (%)				.866
0	36.3	35.9	37.1	
1 to 19	23.0	23.1	22.7	
20 to 34	31.1	31.5	30.3	
35 or more	9.6	9.4	9.9	
Life Challenges Index (mean)	1.46	1.47	1.45	.264
Owns a Car (%)	28.8	28.7	28.9	.959
Has Computer and Internet at Home (%)	84.9	84.1	86.5	.111
Ever Arrested (%)	16.2	16.6	15.5	.502
Sample size [c]	2,539	1,668	871	

Source: Abt Associates calculations based on data from PACE baseline surveys.

Note: Means and percentages are based on unweighted data. The *p*-values are based on *t*-tests (and for sets of categories, *F*-tests) for differences between the two groups. SNAP is Supplemental Nutrition Assistance Program. WIC is Special Supplemental Nutrition Program for Women, Infants, and Children. See Judkins et al. (2022, Appendix A) for definitions of indices and other variables in this table.

[a] This age group includes a small number (less than one percent) of applicants who were accepted just prior to their 25th birthday and had turned 25 by the time they completed the baseline survey.

[b] This category includes a small number (less than one percent) of applicants were accepted just prior to completing a high school credential and marked less than high school on the baseline survey.

[c] The final sample excludes 5 participants who withdrew from the study immediately after random assignment.

The sample characteristics show that Year Up succeeded in reaching its target population. All sample members were aged 18-24, with a roughly even age distribution within this group. A majority of sample members identified as non-Hispanic Black (54 percent) or Hispanic of any race (31 percent). Men (59 percent) outnumbered women (41 percent), though women account

for a higher share of participants in Year Up's heavily IT-focused training program than in IT training generally.[54] Most sample members (68 percent) were living with their parents, and few (9 percent) had children. Many had struggled in high school: 40 percent reported usual grades of C or below, and only 10 percent reported usually receiving A's. About half had attended some college. Nearly two thirds (63 percent) were in families with annual incomes below $30,000. The remaining indicators show varying levels of disadvantage on other fronts.

1.4   Findings from Earlier Reports

Analyses of field interviews and program data in Fein and Hamadyk (2018) show that local Year Up offices fully implemented all program components and generated strong performance on Year Up's internal performance metrics for local programs. For example, all offices met the study's requirement for expanding recruitment by 50 percent for PACE. Year Up continued to accept close to one in six applicants, as in the past—suggesting that the application of program selection criteria was fairly consistent over time. Nearly all (96 percent) treatment group members actually enrolled in training.

Retention was high: 75 percent of the treatment group (78 percent of those enrolling) completed the program. Most of the participants who dropped out did so during the initial six months. The program placed 99 percent of those completing the Learning and Development phase in internships. Year Up received an average of $22,404 per intern from employers.

Staff diligently enforced Year Up's behavior contract: 96 percent of enrollees received at least one infraction, and 45 percent received 10 or more infractions.[55] The average treatment group member nonetheless received $7,142 in stipends during the program (81 percent of the maximum possible amount).[56]

Key findings from the earlier impact and cost-benefit studies included the following:

- ***Large, sustained positive impacts on earnings and positive net benefits to society.*** The findings showed that Year Up initially increased quarterly earnings by nearly $2,000 (a 53 percent increase in Quarters 6-7) and sustained that impact through the five years of follow up. Cost-benefit analyses showed that the program's total benefits to society over the five years exceeded total costs by $15,349 per participant—representing a return of $1.66 for every $1.00 spent on Year Up.

- ***Important subgroup differences.*** Year Up produced large earnings increases for every subgroup examined and in all eight local offices. Although substantial, the impacts' sizes varied for several characteristics. Impacts were largest for young adults who received better grades in high school; had some college experience; identified as Non-Hispanic

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[54] For example, in 2014 women accounted for only 20 percent of recipients of associate degrees in computer science nationally. See https://www.nsf.gov/statistics/2017/nsf17310/static/data/tab4-1.pdf.

[55] Although 10 infractions theoretically could generate enough loss of contract points to trigger program dismissal, participants have opportunities to remedy infractions by meeting program expectations.

[56] This figure represents total stipends averaged over the entire treatment group and thus includes zero payments for the small fraction (four percent) who did not enroll in Year Up.

White/another race (vs Hispanic or Black); and expressed less motivation for training.[57] Impacts also varied across local offices, with particularly large effects in one office.

- ***Few effects on education outcomes after Year 2.*** During the study period, Year Up partnered with local colleges to secure credits for Year Up program courses.[58] Through these arrangements, the program boosted average full-time equivalent college enrollment by about two months above the control group level in follow-up period Year 1. After Year 1, when the main Year Up program was over, most treatment members found full-time jobs and left school. In Year 2, fewer treatment than control group members were enrolled in postsecondary education, and from Year 3 on the two groups had similar enrollment rates. These findings are consistent with the program's logic model, which mostly emphasizes transitions to full-time employment after graduation.

- ***Few effects in life domains other than financial well-being.*** Findings from the three-year survey showed reductions in public assistance receipt, debt, and financial hardship. Year Up had several small effects on living arrangements, including a slight increase in the fraction of young women who were living with a spouse and a decrease in the fraction of young men who were living with their parents.[59] The findings showed no impacts on indices for several psycho-social constructs; namely, grit, core self-evaluation[60], and social support.

1.5   Key Questions for this Report

The present report addresses a number of questions raised by the five-year findings:

- Would impacts on earnings and career-track employment persist in Years 6 and 7, and would subgroup disparities continue?

- Would earnings increases affect other aspects of financial well-being, and would they lead to more changes in education and other life domains than at earlier follow-up junctures?

- Would the COVID-19 pandemic affect Year Up's impacts on earnings and unemployment benefits, and would any such effects vary across subgroups? The prior two questions

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[57] Differences by race-ethnicity were statistically significant in Quarters 6-7 (the confirmatory outcome in Fein and Hamadyk 2018) and over the entire first five years (Fein et al. 2021)—both at the ten-percent level. Though differences were nearly as large in Quarters 12-13 (confirmatory in Fein et al. 2021), they fell slightly above the 10 percent level ($p<.13$). Impacts were larger for respondents scoring in the lower two-thirds on an index of training commitment than for those in the upper third in Quarters 6-7 (Fein and Hamadyk 2018, $p<.10$). Though differences by commitment in Quarters 12-13 and over the first five years also were substantial, they fell just above the 10 percent level ($p=.10$ and $p<.13$, respectively) (Fein et al. 2021).

[58] Year Up discontinued the local college partnership component to its stand-alone program after the PACE period. It now grants college credit for program coursework through the American Council on Education.

[59] The observed 7-percentage point reduction in living with parents for men was statistically significant ($p<.05$), but the gender difference for this outcome was not statistically significant.

[60] An index summarizing several dimensions of self-worth, specifically self-esteem, self-efficacy, locus of control, and neuroticism. See Judkins et al. (2021) for definitions of this and other measures in the three-year survey.

concern impacts at successive follow-up intervals, without distinguishing sample members for whom these intervals preceded or followed pandemic onset. As explained in Chapter 4, assessing pandemic-related shifts requires re-estimating impacts on a calendar, rather than follow-up, quarter basis.

- Would the program's net benefits continue to exceed its costs in the longer-term?

Chapters 2 to 5 address each of these broad questions in turn. Chapter 6 summarizes the findings and discusses their implications. Supplemental exhibits provide additional statistics referenced in the body of this report. A separate technical appendix (Judkins et al. 2022) provides technical detail on the analysis methods.

How to Read Impact Tables

Many exhibits in this report follow a common format in reporting impacts.

The left-most column identifies the **Outcome** whose findings appear in each row.

The next column (**Treatment Group**) presents the treatment group's regression-adjusted mean outcome, followed in the next column by the control group's actual mean outcome (**Control Group**). Regression adjustment corrects for random variation in baseline covariates between the two groups and improves the precision of the estimates.

The next column (**Impact**) is the difference between the treatment and control group means—that is, the impact of being offered Year Up. The **Standard Error** column is a measure of uncertainty in the estimated impact that reflects chance variation due to randomization and any measurement error. The column labeled **Relative Impact** presents the impact as a percentage change from the control group mean. It offers a sense of how "big" or "small" the impact of the program on the treatment group is, at least relative to the control group's level.

For outcomes with no natural unit of measurement we report an **Effect Size** instead of the relative impact. The effect size is a standardized measure that defines impacts as a fraction of the pooled standard deviation across the treatment and control groups. It offers a sense of the size of the impact relative to how much the outcome varies across the full sample and allows for comparison of the size of the impact across scale outcomes.

The final column, **p-Value**, is the probability that the observed or a larger difference between the treatment and control groups would occur by chance, even if there was in reality no difference between the two groups.

Statistical significance

This report identifies estimated impacts as statistically significant if their associated p-values are below .10. The smaller the p-value, the more likely that the observed difference between the treatment and control groups is real, rather than occurring by chance. Asterisks distinguish results that are statistically significant:

   * at the 10 percent level (p<.10)

   ** at the 5 percent level (p<.05)

   *** at the 1 percent level (p<.01)

Categories of findings

Tests of statistical significance for confirmatory and secondary outcomes are one-sided tests because their associated hypotheses have direction. The impact tables highlight these outcomes using **bolded text.** Tests of significance for exploratory outcomes are two-sided, as they often do not entail a directional hypothesis. Tables present these outcomes using regular (not bolded) text.

2.   Impacts on Earnings and Employment

Having sustained large earnings impacts for five years, a central question for this report was how much longer impacts would persist and whether they might grow. Analyses in this chapter provide another two years' worth of evidence on this question. Section 2.1 draws on NDNH wage records to extend earnings impacts to a seven-year follow-up period. Sections 2.2 and 2.3 summarize results from NDNH and survey data on employment rates and job characteristics. Section 2.4 assesses whether subgroup differences seen at earlier follow-up junctures have persisted and investigates the degree to which such differences might reflect unique or common factors.

2.1   Earnings

Exhibit 2-1 shows that **Year Up had a $1,895 positive impact on average quarterly earnings in Quarters 23-24—this report's confirmatory outcome**. This overall impact was nearly identical to the $1,857 impact on the last report's confirmatory outcome—average quarterly earnings in Quarters 12-13. The Quarter 23-24 effect represents a smaller percentage increase (28 percent) than did the Quarter 12-13 effect (38 percent), due to increases in the control group's average earnings.

Exhibit 2-1:   Impact on Average Earnings in Specified Follow-up Periods

Outcome	Treatment Group	Control Group	Impact (Difference)		Standard Error	Relative Impact	*p*-Value
Average quarterly earnings in Quarters 23 and 24 (Confirmatory, $)	$8,797	$6,901	+$1,895	***	$267	27.5	<.001
Average quarterly earnings of $9,100 or more in Quarters 23 and 24 (%)[a]	44.1	31.7	+12.4	***	1.9	39.2	<.001
Average total earnings ($) in follow-up:							
Year 1 (Quarters 0-3)	$3,964	$9,742	−$5,778	***	$259	−59.3	<.001
Year 2 (Quarters 4-7)	$19,200	$13,978	+$5,222	***	$507	37.4	<.001
Year 3 (Quarters 8-11)	$24,330	$17,320	+$7,011	***	$636	40.5	<.001
Year 4 (Quarters 12-15)	$27,858	$20,277	+$7,581	***	$741	37.4	<.001
Year 5 (Quarters 16-19)	$31,032	$23,243	+$7,789	***	$820	33.5	<.001
Year 6 (Quarters 20-23)	$34,439	$26,363	+$8,076	***	$947	30.6	<.001
Year 7 (Quarters 24-27)	$35,589	$27,338	+$8,251	***	$1,120	30.2	<.001
Years 1-7	$176,412	$138,260	+$38,152	***	$3,958	27.6	<.001
Sample size	1,637	858					

Source: National Directory of New Hires.
Note: Bolded rows indicate confirmatory and secondary outcomes. Hypothesis tests are one-sided for confirmatory and secondary outcomes and two-sided for other (exploratory) outcomes. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]). Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.
[a] $9,100 is approximately the quarterly earnings that would result from full-time employment (35 hours/week) at $20/hour.

Increased average earnings were accompanied by a 12-percentage point increase in employment in "good jobs" – proxied in Exhibit 2-1 by NDNH-recorded quarterly earnings of at

least $9,100. These earnings equal the amount young adults would earn in a quarter if they worked full time for $20/hour.[61]

Year Up's annual earnings impacts appear to increase modestly from Years 3 to 7 (from $7,011 to $8,251),[62] but the difference between these years is not statistically significant (*p*=.23). As seen in earlier reports, the impact was negative in Year 1 (-$5,778) when most treatment group members prioritized Year Up participation over other work. As reported by Fein and Hamadyk (2018), Year Up stipends averaging $7,142 per treatment group member (not counted as earnings in Exhibit 2-1) more than made up for the foregone earnings.

Exhibit 2-2 summarizes the same trends graphically, based on average quarterly earnings. While impacts persisted, average earnings for both groups crested in Quarter 23, fell slightly over the next two quarters, and then turned up slightly in the treatment group. Analyses in Chapter 4 rearrange the data into calendar quarters to assess the degree to which changes in the last follow-up year may have been influenced by the onset of the COVID-19 pandemic.

Exhibit 2-2:   Average Quarterly Earnings in Successive Follow-up Quarters by Treatment-Control Status
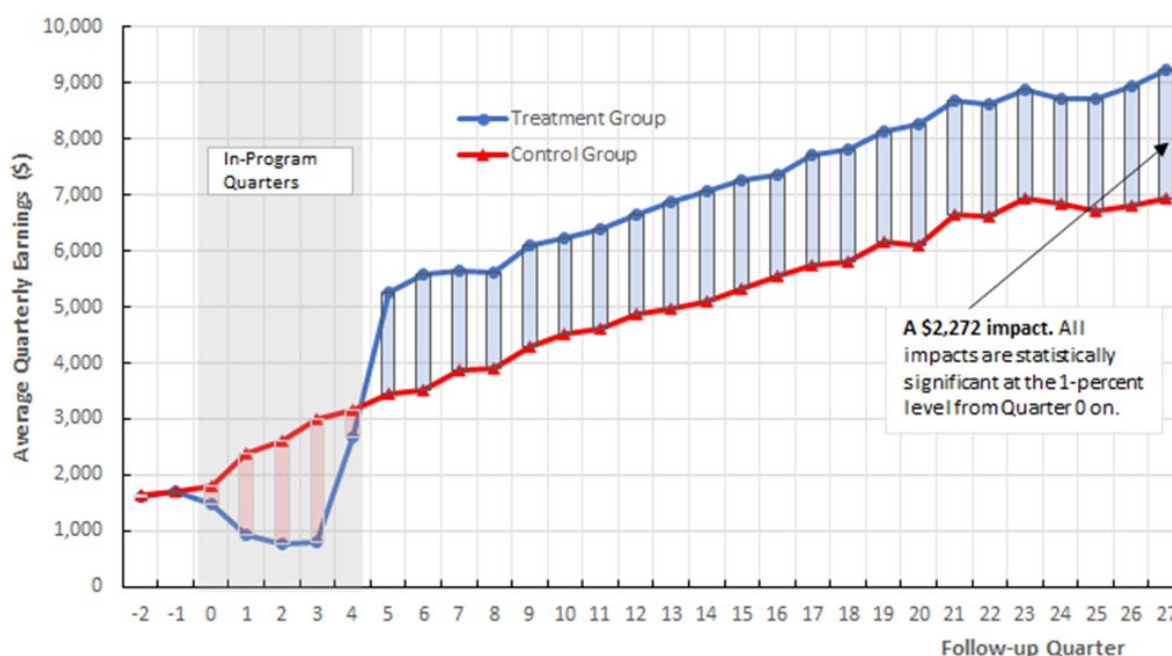
Source: Quarterly wage records obtained in a match to the National Directory of New Hires for 1,638 treatment and 858 control group members. See Supplemental Exhibit 1 for underlying statistics.

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[61]   As mentioned in Chapter 1, Carnevale et al. (2017) set the minimum a "good job" should pay at 35,000/year for workers under age 45—very close to the $36,400/year that our $9,100/quarter threshold implies.

[62]   Although participants generally finished the program in Year 1, many did not begin jobs until sometime in the first or second quarters of Year 2. For this reason, although we expect impacts to be positive in Year 2, Year 3 provides a better baseline for gauging how impacts changed in the years following the program.

2.2   Employment and Hourly Wages

Survey and NDNH data both show **Year Up had no impact on whether young adults were working at the six-year mark**. Close to 80 percent of youth in both the treatment and control groups worked at the time of the survey (Exhibit 2-3, top panel) and in Quarters 23-24 (Exhibit 2-4). NDNH data show small positive impacts (3-4 percentage point) in some quarters before Quarters 23-24 but not after that point.

Exhibit 2-3:   Impact on Hours Worked and Wages as of the Six-Year Survey Interview

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	*p*-Value
Hours working per week (%)						
Not currently employed	20.1	18.9	+1.2	2.1	6.2	.576
1-19 hours	1.7	4.2	−2.5 ***	1.0	−60.0	.008
20-34 hours	9.6	13.4	−3.8 **	1.8	−28.4	.032
35+ hours	68.5	63.4	+5.2 **	2.5	8.1	.042
Total	100.0	100.0				
Average weekly hours	30.9	30.7	+0.2	0.9	0.6	.830
Hourly wages if employed (%)						
$1-9	1.8	1.7	+0.1	0.8	8.1	.860
$10-14	14.4	21.9	−7.5 ***	2.4	−34.2	.001
$15-19	29.5	37.9	−8.4 ***	2.9	−22.1	.004
$20-29	34.0	28.5	+5.5 **	2.8	19.3	.050
$30-39	13.1	5.6	+7.5 ***	1.6	132.5	<.001
$40+	7.2	4.4	+2.8 **	1.3	64.1	.038
Total	100.0	100.0				
Average hourly wage if employed ($)	22.70	19.83	+2.87 ***	0.54	14.5	<.001
Sample size (all respondents)	1,119	534				

Source: PACE six-year follow-up survey.
Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Wage statistics in italicized rows are conditioned on employment and thus not purely experimental: Hence, they are not regression-adjusted. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]). Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Exhibit 2-4:   Employment Rate in Successive Follow-up Quarters by Treatment-Control Status
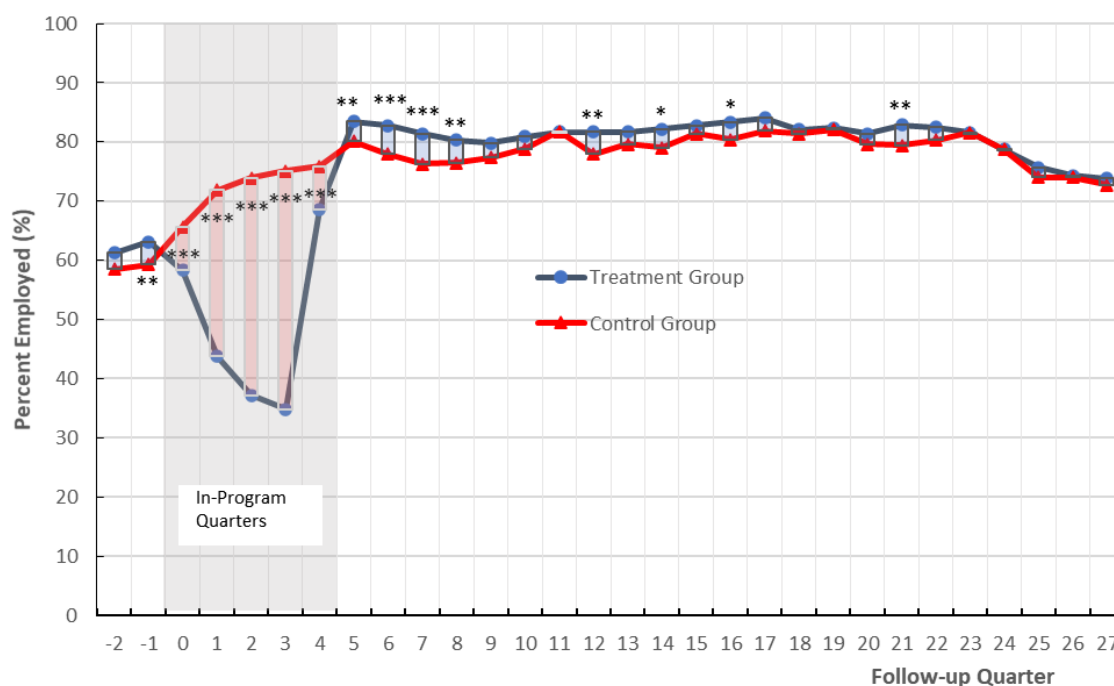
Source: Quarterly wage records obtained in a match to the National Directory of New Hires for 1,638 treatment and 858 control group members. See Supplemental Exhibit 2 for underlying statistics.

Note: Treatment-control differences (impacts) statistically significant at the * 10-percent, ** 5-percent, *** 1-percent level (two-tailed tests).

The finding of scant effects on employment implies that Year Up's earnings impacts must be the result of increased work hours for those employed, higher wages, or a combination of the two. The six-year survey asked about hours and wages in the week before the survey. Analyses in Exhibit 2-3 show no impact on average work hours (31 hours in both groups) and a $3 impact in average hourly wages. The estimate for hours is puzzling because the wage impact alone is not enough to generate the large earnings impacts seen in NDNH data. Survey-based earnings estimates from the earlier 18-month and three-year surveys agreed closely with NDNH-based estimates for the survey quarter.[63] Perhaps the six-year survey simply captured hours during an atypical work week.[64]

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[63]   As a further check on the six-year survey estimates, we examined the degree of alignment between two six-year measures: any employment at $20+ hours in the week before the survey and employment with quarterly earnings of $9,100 or more (i.e., six-year survey and NDNH-based proxies for the fractions employed at $20 or more/hour). The two sets of estimates are virtually identical, suggesting that survey estimates for (any) employment and wages are fairly accurate. Among survey respondents, the fractions employed at $20 or more/hour (multiplying the fraction employed by the fraction of employed earning $20+/hour in Exhibit 2-3) were 43.3 and 31.1 percent for treatment and control group members, respectively. The corresponding fractions with average quarterly NDNH earnings of $9,100 or more (i.e., earnings for a 35-hour week at $20/hour over 13 weeks) in Quarters 23-24 were 44.4 and 31.7 percent, respectively (Exhibit 2-1).

[64]   We also checked the possibility that the result arose from unusual labor market conditions affecting the 24 percent of six-year survey respondents whose interviews followed the COVID-19 pandemic's onset in March 2020 (results not shown in exhibit). Although post-onset respondents reported fewer work hours than earlier respondents (about five hours less, primarily reflecting increases in those with

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2.3   Career Track Employment

Year Up had substantial, statistically significant positive impacts on a series of indicators of career track employment (Exhibit 2-5). These outcomes include the percentage working in jobs that were full-time, in Year Up target occupations (e.g., IT, financial services), offered a good array of benefits, and paid $20 per hour or above. Year Up had small positive impacts on how young adults assessed their career progress (.17 effect size) and their access to a career network (.12 effect size). Treatment group members were nine percentage points more likely to report promotions than control group members in the last three years.

Exhibit 2-5:   **Impact on Selected Indicators of Career Track Employment as of the Six-Year Survey Interview**

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact/ Effect Size	p-Value
Positive Employment Outcomes						
Working full-time (35+ hours/week) (%)	68.5	63.4	+5.2 **	2.5	8.1	.021
Working in a program-targeted occupation (%)	44.7	23.4	+21.3 ***	2.4	90.8	<.001
Working in a job offering all of a list of five benefits[a] (%)	57.9	48.8	+9.2 ***	2.8	18.8	<.001
Working in a job at or above $20/hour (%)	43.3	31.1	+12.2 ***	2.5	39.4	<.001
Other Indicators of Career Progress						
Perceived career progress (mean for 3-item scale w/values ranging 1-4)	3.35	3.22	+0.13 ***	0.04	0.17	.003
Access to career network (mean number of affirmative responses for 6 Y/N items)	3.51	3.28	+0.22 **	0.10	0.12	.015
Received any promotions in the last three years (%)	35.3	26.8	+8.5 ***	2.4	31.8	<.001
Changed employers for better job in last three years (%)	13.6	12.6	+1.0	1.8	7.8	.583
Sample size (all survey respondents)	1,119	534				

Source: PACE six-year follow-up survey.
[a] The list included: health insurance, paid vacation, paid holidays, paid sick days, and retirement or pension benefits.
Note: Rows in **bold** identify secondary outcomes. Hypothesis tests are one-sided for secondary outcomes and two-sided for other (exploratory) outcomes. Statistics for percentage outcomes in the "Relative Impact/Effect Size" column represent the impact as percentage of the control group mean (i.e. 100 * [impact / control group mean]). Statistics for two outcomes based on multi-item indices (perceived career progress and access to career network) are effect sizes—i.e., the impact as a percentage of the control group standard deviation. Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

As at earlier follow-up junctures, employed treatment group members were substantially more likely to be working in IT and business/financial services (29 and 21 percent, respectively) sectors than were employed control group members (8 and 16 percent; Exhibit 2-6).

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zero hours), the declines were nearly identical for treatment and control group members, as were impacts on hours (0.0 and 0.7 hours, for pre- and post-onset respondents, respectively).

Exhibit 2-6: Percentage of Employed Working in Broad Occupational Sectors in Current Job as of the Six-Year Survey
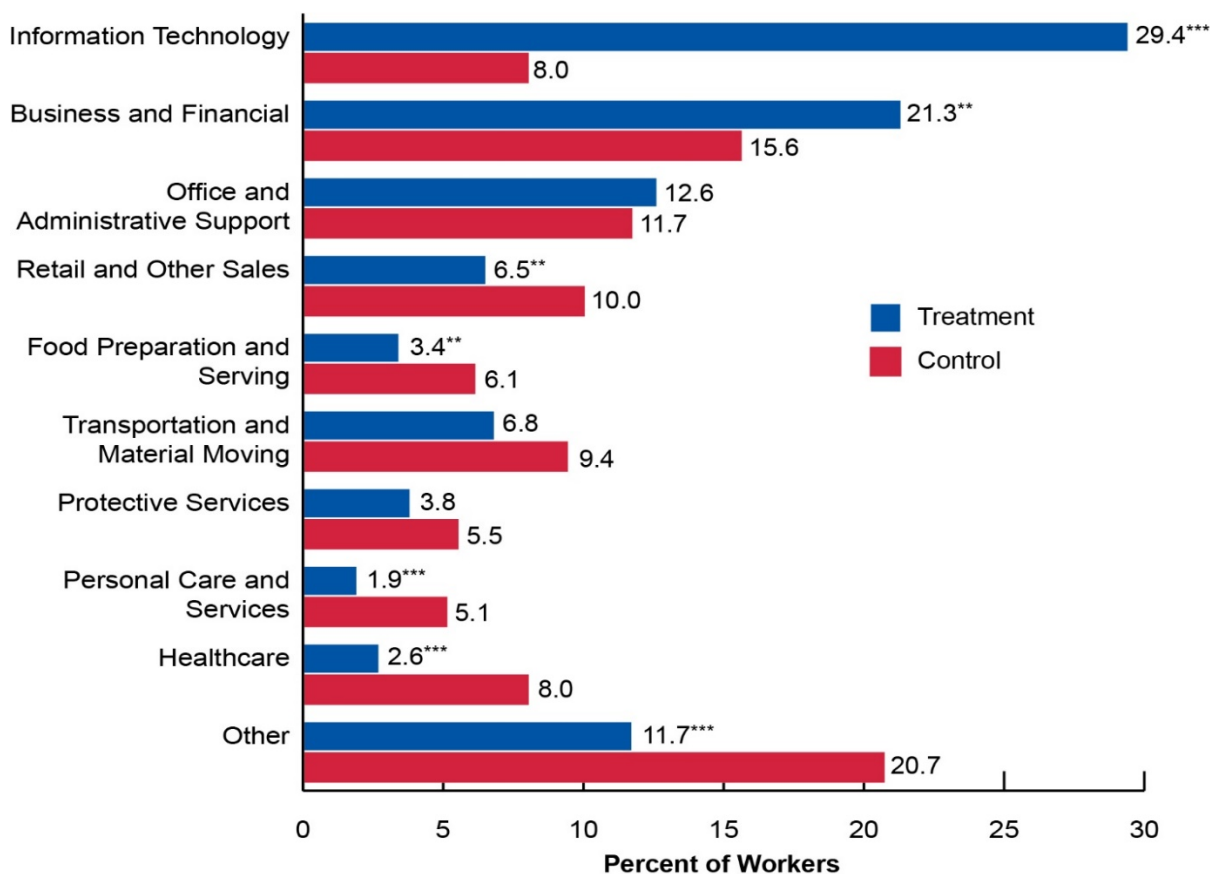
Source: PACE six-year follow-up survey.
Note: Based on samples of 905 treatment and 430 control group members reporting employment at the time of the survey. Because comparisons are conditioned on employment, they are non-experimental. Statistics incorporate nonresponse weights but are not regression-adjusted. Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

2.4   How Did Impacts Vary among Young Adults?

Subgroup impacts for Quarters 23-24 in Exhibit 2-7 generally resemble patterns seen at earlier junctures. After summarizing the new results, Section 2.4.1 investigates whether the size of differences between subgroups has changed over time. As a step towards understanding the sources of these differences, Section 2.4.2 assesses whether differences for each characteristic persist after controlling for influences on other characteristics.

Young adults with better high school grades and some college benefited more than those with worse grades and no college experience. Impacts also differed across local offices, mainly due to an especially large impact for office H ($6,223).[65]

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[65] Office H is located in a region of the country with an especially high concentration of well-paying tech jobs. Removing Office H, differences among the remaining offices are not statistically significant (*p*=.981). Although the impact for Office C appears to be the smallest, large confidence intervals around office-level estimates suggests the difference may be due to chance.

Exhibit 2-7:   Impact on Average Quarterly Earnings in Follow-Up Quarters 23 and 24 by Subgroup

Subgroup	Mean Quarterly Earnings		Impact (Difference)	Standard Error	p-Value for		Sample Size	
	Treatment	Control			Subgroup Impact	Subgroup Differences	Treatment	Control
Age						0.308		
<20	$7,754	$6,553	+$1,201 **	$505	.018		419	219
20-22	$9,136	$7,032	+$2,104 ***	$402	<.001		781	386
23-24	$9,137	$7,003	+$2,135 ***	$513	<.001		437	253
Gender						.514		
Male	$9,340	$7,600	+$1,740 ***	$362	<.001		967	506
Female	$7,985	$5,897	+$2,088 ***	$392	<.001		670	352
Race-Ethnicity						.106		
Black, non-Hispanic	$7,609	$6,170	+$1,439 ***	$337	<.001		887	462
Hispanic, any Race	$9,551	$7,574	+$1,977 ***	$488	<.001		524	273
White/Another Race (non-Hispanic)	$11,598	$8,157	+$3,442 ***	$912	<.001		226	123
Usual High School Grades			† †			.026		
A's and B's	$9,218	$6,842	+$2,376 ***	$357	<.001		963	530
C's or below	$8,171	$6,997	+$1,175 ***	$401	.003		674	328
Educational Attainment			† † †			.008		
High School	$7,662	$6,541	+$1,121 ***	$342	.001		841	462
<1 Year College	$9,247	$6,783	+$2,464 ***	$601	<.001		366	183
1+ Year College	$10,814	$7,784	+$3,031 ***	$584	<.001		430	213
Training Commitment						.959		
Low (bottom third)	$9,112	$7,237	+$1,875 ***	$484	<.001		548	279
Med (next third)	$8,549	$6,861	+$1,687 ***	$458	<.001		502	283
High (top third)	$8,438	$6,623	+$1,815 ***	$445	<.001		587	296
Depressive Symptoms			†			.081		
Low (bottom third)	$8,954	$6,446	+$2,508 ***	$422	<.001		663	358
Med (next third)	$8,896	$7,129	+$1,767 ***	$561	.002		347	213
High (top third)	$8,416	$7,300	+$1,115 **	$457	.015		627	287
Life Challenges						.319		
Low (bottom third)	$9,307	$7,219	+$2,088 ***	$448	<.001		630	336
Med (next third)	$9,121	$6,866	+$2,255 ***	$497	<.001		479	257
High (top third)	$7,863	$6,532	+$1,331 ***	$448	.003		528	265
Expected Work Hours						.151		
<10/week	$8,593	$6,306	+$2,288 ***	$417	<.001		637	341
10-29/week	$9,356	$7,472	+$1,885 ***	$428	<.001		719	363
30+/week	$7,763	$6,875	+$888	$587	.131		281	154
Office			† † †			.002		
A	$7,578	$6,271	+$1,308 *	$772	.090		161	85
B	$9,231	$7,898	+$1,333 **	$612	.030		316	161
C	$8,071	$7,322	+$749	$704	.288		156	85
D	$8,618	$7,227	+$1,391 **	$696	.046		242	120
E	$6,571	$5,196	+$1,375 **	$673	.041		172	98
F	$8,503	$6,793	+$1,710 **	$742	.021		273	149

	Mean Quarterly Earnings				p-Value for		Sample Size	
Subgroup	Treatment	Control	Impact (Difference)	Standard Error	Subgroup Impact	Subgroup Differences	Treatment	Control
G	$8,825	$7,143	+$1,681 *	$939	.073		158	82
H	$12,891	$6,667	+$6,223 ***	$1,024	<.001		159	78
All Groups	$8,797	$6,901	+$1,895 ***	$267	<.001		1,637	858

Source: National Directory of New Hires and PACE baseline survey.
Note: See Appendix A for definitions of characteristics. Daggers identify outcomes for which subgroup impacts differ in a two-tailed test at the: † 10 percent level; †† 5 percent level; ††† 1 percent level. Associated *p*-values shown immediately to the right of characteristics' names. Asterisks indicate whether each estimated impact is statistically significant (i.e., different from zero) at the: * 10 percent level, ** 5 percent level; *** 1 percent level.

Impacts for young adults identifying as White or another race[66] ($3,442) are considerably larger than for those identifying as Black ($1,439) or Hispanic ($1,977). Although these race-ethnicity differences narrowly miss the 10-percent significant threshold (at *p*=.106) – due mainly to the small White/other sample – tests for adjacent follow-up periods suggest the disparities are real.[67]

One characteristic with no evidence of differential impacts earlier—self-reported depressive symptoms at study intake—did show substantial differences in Quarters 23-24. Earnings impacts were smaller for young adults in the high depressive symptoms category ($1,115) than in the low and middle categories ($2,508 and $1,767, respectively).[68]

Four characteristics that had not shown subgroup differences previously also did not show differences in Quarter 23-24: age, gender, life challenges and expected work hours. Signs of smaller impacts for the most motivated, compared to less motivated, trainees in Quarters 6-7 and 12-13 (Fein and Hamadyk 2018, Fein et al. 2021) disappeared in Quarters 23-24.

2.4.1 Did the Size of Subgroup Differences Change Over the Follow-up Period?

Although the size of overall impacts was remarkably stable throughout the follow-up period, the underlying trends for subgroups might be more dynamic. For example, young adults best able to

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[66] As seen in Exhibit 1-1, young adults identifying as "another race" represent a majority of the White/other group. Given similar outcomes for this (mostly Asian) group and Whites, we combined the two categories to improve statistical power in subgroup analysis.

[67] Race-ethnicity differences in earnings impacts are statistically significant for Quarters 6-7 (confirmatory outcome in our first report, *p*=.032) and for Years 1-7 overall (*p*=.026, see first column of Exhibit 2-9), though not for Quarters 12-13 (confirmatory in the second report, *p*=.162). Race-ethnicity differences for Quarters 23-24 are slightly sharpened (and statistically significant at *p*=.066) when regression adjustment models exclude dummy variables for local office, as in Exhibits 2-8 and Supplemental Exhibit 3 (which uses a slightly different specification).

[68] Further examination strongly indicates that the Quarter 23-24 differences are real: Impacts also differ with level of baseline depressive symptoms in Quarters 21-22 (*p*=.018, not shown in exhibit) and for Years 1-7 overall (*p*=.019, see first column of Exhibit 2-9). Baseline depression was unrelated to impacts in Quarters 6-7 (*p*=.495) and 12-13 (*p*=.444, not shown). Estimates for Quarters 6-7 and Quarters 12-13 run for this report differ slightly from those in Fein and Hamadyk (2018) and Fein et al. (2021) due to small changes in the NDNH database and regression-adjustment specifications across reports.

take advantage of Year Up's boost might see increasing impacts, whereas benefits might fade among participants with more personal challenges. Analyses in this section consider whether *changes* in earnings impacts from Quarters 6-7 to Quarters 23-24 differed across subgroups.

The first two columns of Exhibit 2-8 summarize the subgroup impacts in each period. Probabilities in shaded rows indicate for each characteristic the likelihood that subgroup differences arose by chance, and asterisks in the rows for individual subgroups identify statistically significant subgroup impacts. The next two columns show for each subgroup the *change* in impacts between periods and the probability that this change arose by chance. Finally, shaded rows in the last two columns show probabilities that the observed *differences in changes* for each characteristic arose by chance—first, across all subgroups comprising the characteristic (second to last column) and, second, for specified two-group contrasts within characteristics with three groups.[69]

The findings suggest countervailing trends for several characteristics. Most strikingly, impacts *fell* by $983 between Quarters 6-7 and Quarters 23-24 among the youngest (18-19) sample members (top panel of Exhibit 2-8). In contrast, while impacts changed little in the middle age group (a $106 increase) they *grew* in the oldest (23-24) group (a $587 increase). As shown in Exhibit 2-8, the change in impacts was statistically significant for the youngest age group (*p*=.021) but not the oldest group (*p*=.256). *Differences* in changes were statistically significant across the three groups (*p*=.039) and even more so when comparing the youngest and oldest enrollees (*p*=.016).

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[69] These two-group contrasts aimed to maximize the distance between subgroup values (e.g., youngest vs oldest participants) or increase sample size for comparisons by collapsing two of the three groups (e.g., low- and medium- vs high-depression participants). These exploratory analyses were prompted by initial (three-subgroup) findings: accordingly, actual precision is less than had tests been pre-specified hypotheses. The goal was to identify possible potential shifts worth investigating in future research rather than confirm *a priori* expectations.

Exhibit 2-8: Change in Impacts on Average Quarterly Earnings from Quarters 6-7 to Quarters 23-24 by Subgroup

| Subgroup | Subgroup Impact (*p*-value for subgroup differences) | | Change from Q6-7 to Q23-24 | *p*-Value | *p*-Value for Difference in % Change across | |
	Q6-7	Q23-24			All Groups	Selected Contrasts
Age	**.241**	**.415**			**.039**	**.016**
<20	+$2,330 ***	+$1,347***	-$983	.021		<20 vs 23-24
20-22	+$1,971 ***	+$2,077***	$106	.786		
23-24	+$1,626 ***	+$2,213***	$587	.256		
Gender	**.348**	**.521**			**.791**	**NA**
Male	+$1,851 ***	+$1,806***	-$45	.700		
Female	+$2,135 ***	+$2,147***	$12	.998		
Race-Ethnicity	**.032**	**.046**			**.740**	**.426**
Black, non-Hispanic	+$1,623 ***	+$1,444***	-$179	.606		(Black+ Hispanic) vs White
Hispanic, any Race	+$2,130 ***	+$2,062***	-$68	.768		
White/Anther Race (non-Hispanic)	+$2,897 ***	+$3,761***	$864	.532		
Usual High School Grades	**.022**	**.032**			**.421**	**NA**
A's and B's	+$2,244 ***	+$2,363***	$119	.747		
C's or below	+$1,531 ***	+$1,213***	-$318	.429		
Educational Attainment	**.053**	**.006**			**.112**	**.044**
High School	+$1,597 ***	+$1,125***	-$472	.135		High School vs 1+ Year
<1 Year College	+$2,352 ***	+$2,477***	$125	.721		
1+ Year College	+$2,317 ***	+$3,129***	$812	.145		
Training Commitment	**.136**	**.923**			**.475**	**.480**
Low (bottom third)	+$2,219 ***	+$2,068***	-$151	.409		(Low + Med) vs High
Med (next third)	+$2,111 ***	+$1,805***	-$306	.461		
High (top third)	+$1,529 ***	+$1,892***	$363	.481		
Depressive Symptoms	**.438**	**.071**			**.193**	**.064**
Low (bottom third)	+$2,180 ***	+$2,524***	$344	.376		(Low + Med) vs High
Med (next third)	+$1,768 ***	+$1,952***	$184	.916		
High (top third)	+$1,793 ***	+$1,102**	-$691	.107		
Life Challenges	**.174**	**.285**			**.677**	**.582**
Low (bottom third)	+$2,252 ***	+$2,138***	-$114	.683		(Low + Med) vs High
Med (next third)	+$1,989 ***	+$2,283***	$294	.546		
High (top third)	+$1,593 ***	+$1,324***	-$269	.575		
Expected Work Hours	**.203**	**.186**			**.671**	**.452**
<10/week	+$2,119 ***	+$2,335***	$216	.648		<30/week vs 30+/week
10-29/week	+$1,999 ***	+$1,921***	-$78	.803		
30+/week	+$1,419 ***	+$1,005*	-$414	.451		

Subgroup	Subgroup Impact (p-value for subgroup differences)		Change from Q6-7 to Q23-24	p-Value	p-Value for Difference in % Change across	
	Q6-7	Q23-24			All Groups	Selected Contrasts
Office	.020	.002			.143	.003
A	+$1,477 ***	+$1,308*	-$169	.824		
B	+$1,197 ***	+$1,333**	$136	.815		Office H vs other offices
C	+$1,461 ***	+$749	-$712	.300		
D	+$1,698 ***	+$1,391**	-$307	.630		
E	+$2,272 ***	+$1,375**	-$897	.169		
F	+$2,168 ***	+$1,710**	-$458	.504		
G	+$2,263 ***	+$1,681*	-$582	.515		
H	+$3,589 ***	+$6,223***	$2,634	.007		

Note: Impact estimates for subgroups are from main subgroup analyses, with changes in impacts estimated by direct subtraction. Asterisks indicate whether each estimated impact is statistically significant (i.e., different from zero) at the: * 10 percent level, ** 5 percent level; *** 1 percent level. Separate analyses generated *p*-values in the last three columns. The latter used slightly different covariates in regression adjustment than in the main subgroup analyses.

Trends in impacts also varied by educational attainment. Earnings impacts fell $472 among sample members with only a high school credential, changed little (up $125) for those with less than a year of college, and increased more substantially for those with a year or more of college ($812). Differences in changes test slightly above the 10 percent significance threshold in a global test across all three groups (*p*=.117). The difference in changes between the lowest and highest education groups is significant at the 5 percent level, however (*p*=.044).[70]

Having seen differences in earnings impacts by level of depressive symptoms for the first time in Quarters 23-24, Exhibit 2-8 summarizes analyses directly testing differences in changes across depression categories. Point estimates show small increases in impacts for the low ($261) and medium ($54) depressive symptom groups and a more substantial decrease ($691) for the high depression group. Although none of the point estimates of change are statistically significant, the difference in changes between the high depression category and the combined bottom two categories is significant at the 10 percent level.[71]

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[70] Growth in impacts for young adults with 1+ year of college at baseline cannot be attributed to positive impacts on longer-term (i.e., 1+ year) college certificates or associate/bachelor's degree receipt: estimated *impacts* for these outcomes are negatively signed and do not differ statistically for young adults with 1+ year and those with less education at baseline (results not shown). As might be expected, *levels* of longer-term credential receipt were substantially higher for both treatment and control group members with 1+ years of college at the outset (about 25 percent) than for those with less post-secondary experience (around 10 percent). It is possible that Year Up's training and job placements helped treatment group members take advantage of better mobility options for workers with credentials within firms.

[71] The decline for high depression group narrowly misses the 10 percent threshold at *p*=.107. Since the probability that changes differ across all three depression levels is .193 (Column 5), we cannot rule out chance as the explanation for the observed differences in changes. That said, the global test for the three-group comparison is crude because it does not assess *order* across successive levels of depression and because it treats differences in changes across the three categories (e.g., low versus

For the most part, the remaining characteristics show little evidence of divergence in impacts between Quarters 6-7 and 23-24. For example, point estimates show small declines in impacts for young adults identifying as Black (of $179) and Hispanic (of $68) and an increase for those identifying as White/other ($864), but differences are not statistically significant (either across all three groups or comparing Blacks and Hispanics combined with Whites). Results by office show a large increase ($2,634) for Office H and mostly small to modest declines elsewhere. Though differences in changes across offices are not statistically significant (*p*=.143), the difference between the change for Office H and other offices is highly significant (*p*=.003).

In summary, the apparent stability in Year Up's overall impacts on earnings reflects countervailing trends for some subgroups. Most notably, impacts *grew* for sample members who at baseline were in the oldest age group, had the most college experience, or reported low-moderate depressive symptoms but *declined* for their younger, less college-experienced, higher-depression counterparts.

This was an exploratory analysis, and the findings are suggestive rather than definitive. The number of tests and small subgroup samples reduce statistical power. The goal was to identify possible potential shifts worth investigating in future research rather than confirm *a priori* expectations.

2.4.2   Do Subgroup Differences in Impacts Persist after Controlling for other Factors?

Differences in earnings impacts might arise from qualities particular to the personal and geographic characteristics in the foregoing analyses—or from qualities of factors correlated with these characteristics. Smaller impacts for participants identifying as Black could stem, for example, from discrimination in the labor market or from larger initial skill gaps that Year Up could not completely close.[72] Young adults without prior college experience might have had less opportunity to acquire skills and credentials helpful in capitalizing on Year Up's training—but limited college experience also might reflect longer-standing learning difficulties (i.e., issues already evident in high school). Long-term mental health challenges might explain smaller impacts for those scoring high on depressive symptoms at intake, but symptoms also could indicate other serious life challenges interfering with employment.

A better understanding of subgroup differences in impacts can help ensure that program operators formulate solutions that address the real underlying problems. If findings implicate workplace discrimination as a source of race-ethnicity differences, for example, Year Up might redouble its efforts to collaborate with employers to create more inclusive and equitable work settings and equip participants to recognize and address biases effectively. Should college

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medium, medium versus high, low versus high) equally when effects may be non-linear (e.g., declines concentrated among the highest depressive symptoms category). Comparing the change in impacts for the highest category and the bottom two categories collapsed, the probability falls below 10 percent (*p*=.064, Column 6).

[72]   At baseline, sample members who identified as Black were somewhat less likely than those identifying as White/another race to say they received mostly A's in high school (9 versus 15 percent) and substantially less likely to say that they attended college for at least a year (25 versus 33 percent).

attainment remain salient net of other factors, it may be helpful to strengthen academic tutoring and relationships with local college partners. If initial levels of depressive symptoms prove to be long-term predictors of impacts, the program could consider supplementing mental health supports.

To assess these and other factors that might explain characteristics' influences on impacts, we re-estimated subgroup impacts while holding the influence of different sets of possible explanatory factors constant. More technically, to base models including interactions of single characteristics with the treatment we added successive sets of interactions with other characteristics.[73] In each specification, we estimated the probability of the focal subgroup differences arising by chance. We also estimated the adjusted subgroup impacts themselves.

We ran these analyses for impacts on average earnings in Quarters 23-24 and for average total earnings in Years 1-7. Since results were very similar for the two time periods but somewhat more precise for the broader time frame, we focus on those findings.[74] The first column of Exhibit 2-9 shows subgroup impacts when each characteristic is considered on its own (as in the main subgroup findings in Exhibit 2-7). Echoing results for Quarters 23-24, the unconditional results show statistically significant differences in earnings impacts by race-ethnicity, high school grades, educational attainment, depressive symptoms, and local office.

Model 1 tests whether larger impacts for those with college experience persist after controlling for high school grades, which reflect academic ability and an educationally supportive family environment. The findings show little change in the two factors' influence: both continue to strongly differentiate impacts, with little decrease in the size of subgroup differences. The two characteristics thus appear to capture distinctive influences.

The next two models (2 and 3) assess whether differences in impacts across race-ethnicity groups might be connected to racial and ethnic disparities in education and mental health. Again, race-ethnicity differences persist, suggesting that the explanation lies elsewhere.

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[73]   The single-characteristic subgroup models – and resulting subgroup impacts and tests – are essentially the same as those used to generate simple (unadjusted) subgroup impacts in Exhibits 2-7 and 2-8. The only difference is that, while models for the earlier exhibits only included main effects for focal characteristics, every model in Exhibit 2-9 included main effects for all characteristics entering any of the subgroup analyses. We thereby ensured that the only difference across models was the treatment by characteristic interactions included.

[74]   Supplemental Exhibit 3 provides results for average quarterly earnings in Quarters 23-24.

Exhibit 2-9:   Subgroup Impacts on Average Total Earnings in Years 1-7, Controlling for Differences in Impacts on Varying Sets of Characteristics

Subgroup	Simple (Unconditional) Effects	Impacts after Controlling for Impacts on other Specified Characteristics				
		Model 1	Model 2	Model 3	Model 4	Model 5
Age	**0.956**					**0.720**
Under 20	$37,908 ***					$40,893 ***
20-22	$39,506 ***					$39,494 ***
23-24	$36,655 ***					$32,493 ***
Gender	**0.644**					**0.453**
Male	$36,806 ***					$35,484 ***
Female	$40,415 ***					$41,590 ***
Race-Ethnicity	**0.026**		**0.029**	**0.027**	**0.124**	**0.163**
Black, non-Hispanic	$29,564 ***		$29,186 ***	$28,651 ***	$31,081 ***	$30,840 ***
Hispanic, any Race	$40,697 ***		$41,835 ***	$41,218 ***	$41,681 ***	$41,653 ***
White/Another Race (non-Hispanic)	$66,348 ***		$64,374 ***	$64,187 ***	$60,403 ***	$57,507 ***
Usual High School Grades	**0.006**	**0.021**	**0.022**	**0.039**		**0.052**
A's and B's	$46,900 ***	$45,994 ***	$45,850 ***	$44,562 ***		$44,704 ***
C's and below	$24,862 ***	$26,976 ***	$27,010 ***	$27,603 ***		$28,379 ***
Educational Attainment	**0.029**	**0.074**	**0.083**	**0.076**		**0.065**
High School	$28,689 ***	$29,482 ***	$29,486 ***	$28,550 ***		$28,885 ***
<1 Year College	$42,527 ***	$41,926 ***	$42,917 ***	$42,788 ***		$43,681 ***
1+ Year College	$54,629 ***	$51,942 ***	$50,820 ***	$50,806 ***		$50,927 ***
Training Commitment	**0.746**					**0.417**
Low (bottom third)	$41,099 ***					$44,189 ***
Med (next third)	$39,752 ***					$39,280 ***
High (top third)	$34,291 ***					$31,079 ***
Depressive Symptoms	**0.019**			**0.023**		**0.030**
Low (bottom third)	$48,953 ***			$49,082 ***		$49,279 ***
Med (next third)	$41,201 ***			$39,437 ***		$41,234 ***
High (top third)	$23,755 ***			$24,389 ***		$24,239 ***
Life Challenges	**0.264**					**0.952**
Low (bottom third)	$44,207 ***					$39,243 ***
Med (next third)	$39,890 ***					$38,269 ***
High (top third)	$29,351 ***					$36,220 ***
Expected Work Hours	**0.376**					**0.929**
<10/week	$42,703 ***					$39,381 ***
10-29/week	$38,606 ***					$37,851 ***
30+/week	$27,682 ***					$35,151 ***

Subgroup	Simple (Unconditional) Effects	Impacts after Controlling for Impacts on other Specified Characteristics				
		Model 1	Model 2	Model 3	Model 4	Model 5
Office	<.001				<.001	0.003
A	$25,335 **				$29,249 **	$29,551 **
B	$24,613 ***				$24,462 ***	$28,022 ***
C	$18,143 *				$13,757	$15,985
D	$38,017 ***				$42,787 ***	$42,522 ***
E	$34,950 ***				$39,257 ***	$32,575 ***
F	$36,090 ***				$36,669 ***	$34,057 ***
G	$41,131 ***				$34,309 ***	$33,569 ***
H	$106,606 ***				$100,237 **	$97,970 **

Source: National Directory of New Hires and PACE baseline survey.
Note: See Judkins et al. (2022), Appendix A, for definitions of characteristics. *P*-values shown as white text report the probability that differences in impacts across subgroups for each characteristic arise by chance in each model. Asterisks indicate whether each estimated impact is statistically significant (i.e., different from zero) at the: * 10 percent level, ** 5 percent level; *** 1 percent level.

Model 4 tests the possibility that differences in impacts by race-ethnicity arise from an uneven distribution of groups across local offices.[75] Controlling for local office, the magnitude of race-ethnicity differences in earnings impacts decline somewhat and just miss the 10-percent threshold for statistical significance (*p*=.124). The difference in impacts between sample members identifying as White/another race and those identifying as Black diminishes from $36,784 to $29,322, suggesting that geographic influences accounted for about 20 percent of the difference. The difference between those identifying as White/another race and those identifying as Hispanic drops from $25,651 to $18,722—a 27 percent fall.

Model 5 includes interactions with treatment-control status for all 10 characteristics. Differences between impacts for Whites/others and impacts for Blacks and Hispanics diminish further—to $26,667 for Blacks and $15,854 for Hispanics. Together, the other 9 factors account for 28 percent of the gap for Blacks and 38 percent of gap for Hispanics.

Although race-ethnicity differences are no longer statistically significant in Models 4 and 5, they remain large. This observation and the fact that the unconditional differences did reach statistical significance leaves open the possibility that real differences remain but simply cannot be detected with these sample sizes (especially the small non-Hispanic White/another race sample).

Both education variables, depression, and office continue to differentiate impacts strongly in Model 5. This finding suggests that these characteristics' effects may arise from unobserved influences specific to each characteristic rather than from some common overarching factor. The practical implication – discussed further in Chapter 6 – is that multiple strategies may be needed to address the factors underlying disparities in impacts.

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[75] Year Up offices varied widely in their racial and ethnic makeup. Across offices the proportion of participants identifying as Black varied from 22 to 86 percent, from 10 to 55 percent for those identifying as Hispanic, and from 6 to 41 percent for those identifying as non-Hispanic White or another (mostly Asian) race.

2.5   Summary

This chapter's central finding is that Year Up's large earnings impacts remained large to the end of the seven-year follow-up period. As in earlier analyses, the effects owe more to the program's success in helping participants secure well-paying jobs in Year Up target occupations than to increases in overall employment.

Persisting subgroup differences in earnings impacts prompted exploratory analyses of whether disparities have changed over time and whether distinct or common influences appear to account for the observed differences. The findings suggest that differences among subgroups have widened for age, education, and depressive symptoms. Controlling for multiple characteristics mostly had little effect on subgroup differences in impacts, implying that unobserved influences – potentially ones specific to each characteristic – underlie such differences.

3. Impacts on Financial Status, Education, and Other Life Outcomes

The PACE theory of change posits that higher earnings and better jobs will have positive effects in other life domains. Most directly, we expect increased earnings will lead to improvements in other indicators of financial well-being. Less directly, greater resources and a heightened career orientation might encourage young adults to pursue additional education and influence other aspects of well-being favorably. Sections 3.1 to 3.3 examine impacts on financial status, education, and other life outcomes, respectively, after six to seven years of follow-up.

3.1 Financial Status

Results in Exhibit 3-1 show positive impacts on a variety of measures of financial well-being. The treatment group's average annual household and personal incomes were $3,164 and $5,374 higher than those of the control group, respectively. Six percentage points more treatment than control group members said they could handle a $400 emergency, and seven percentage points fewer lived in households receiving public benefits.

Exhibit 3-1: Impacts on Various Measures of Financial Well-Being as of the Six-Year Survey

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	*p*-Value
Income						
Average household income (annualized $)[a]	58,760	55,596	+3,164 *	1,781	5.7	0.076
Average personal income (annualized $)[a]	35,708	30,333	+5,374 ***	1,143	17.7	<.001
Financial Resilience						
Able to handle a financial emergency of $400 from savings or checking (%)	55.4	49.1	+6.3 ***	2.5	12.9	0.006
Financial Need						
Household received means-tested public benefits last month (%)	32.3	39.3	−7.0 ***	2.4	−17.8	0.001
Extent of financial distress (mean number of hardships on 9-item scale)	0.74	0.80	−0.06	0.08	−8.0	0.210
Percent of respondents who						
Do not have health insurance	23.7	24.3	−0.6	2.3	−2.5	0.795
Lived with friend/relative sometime in last six months for lack of income (%)	13.4	18.8	−5.4 ***	2.0	−28.6	0.007
Housing Situation						
Rents home (%)	52.5	45.9	+6.6 **	2.7	14.3	0.014
Owns home (%)	7.6	7.7	−0.1	1.4	−1.0	0.957
Lives with family/other arrangement (%)	39.9	46.4	−6.5 **	2.6	−14.0	0.014
Debt						
Debt (average $)						
Student loans (own name)	2,976	4,913	−1,936 ***	499	−39.4	<.001
Student loans (parent's name)	166	185	−18	84	−9.8	0.829
Other debt[b]	3,947	4,198	−251	711	−6.0	0.726
Total debt	7,093	9,324	−2,231 ***	899	−23.9	0.007

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Unemployment Insurance Receipt (NDNH records)						
Average quarterly benefit in						
Years 1-7	$168	$167	$1	$10	-.6	0.942
Quarter 24	$430	$435	−$5	$69	-1.2	0.938
Receipt in Quarter 24 (%)	10.4	10.5	−0.1	1.3	−.6	0.960
Sample Size						
Full sample (for NDNH statistics)	1,637	858				
Survey sample	1,119	534				

Source: PACE six-year follow-up survey.

a Estimate for annualized income obtained by multiplying income for the month prior to the survey by 12.

b Other debt includes "un-secured" debt (e.g., credit cards) and excludes "secured" debts (e.g., mortgages and car loans).

Note: Rows in **bold** identify secondary outcomes. Hypothesis tests are one-sided for secondary outcomes and two-sided for other (exploratory) outcomes. Statistics under Relative Impact represent the impact as percentage of the control group mean (i.e. 100 * [impact / control group mean]). Effect sizes represent the impact as a percentage of the control group standard deviation. Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Year Up also showed positive impacts on two key measures of housing security. It decreased by five percentage points the fraction who had lived with a friend or relative in the past six months due to lack of income, and it increased by seven percentage points the fraction who were renting a house or apartment rather than living in someone else's home.

Average debt was $2,231 lower for treatment ($7,093) than control ($9,324) group members, primarily due to less owed for student loans. Lower student loan debt has several explanations, including Year Up's provision of free training during follow-up Year 1, somewhat lower rates of college enrollment for treatment than control group members in Year 2 (as the former focused on employment), and perhaps an improved ability to pay education costs with earnings.[76]

Some measures of financial status show no impact. Treatment and control group members did not differ in their average scores on a nine-item index of financial distress, in having health insurance coverage, or in levels and rates of Unemployment Insurance (UI) receipt.

Analysis of NDNH records shows that quarterly UI payments for treatment and control group members were quite low ($168 and $167, respectively) when averaged over the entire seven-year follow-up period but larger in Quarter 24 ($430 and $435 in the treatment and control groups, respectively) when some sample members were experiencing the effects of the COVID-19 downturn. Analyses in Chapter 4 assess the pandemic's effects on earnings and unemployment benefits in some detail.

3.2   Education

Although Year Up's main goal is full-time employment, the program's logic model embodies an expectation that graduates will continue in college once their employment situations are

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[76]   Analyzing college enrollment impacts over the first five follow-up years, Fein et al. (2021) discuss potential sources of the reduction in average student debt.

stabilized. To encourage continuation, the program provides instruction in basic academic skills and co-enrolls participants at local colleges, where they can earn credits for Year Up courses.

3.2.1 Credential Receipt

Estimated impacts on college credential receipt based on National Student Clearinghouse (NSC) records and the six-year survey differ slightly but point in the same direction. **NSC estimates (Exhibit 3-2, top panel) show no impacts on receipt of longer-term certificates or of an associate degree or above.** Positive impacts on short-term certificates thus underlie

Exhibit 3-2:   Impacts on Various Education Outcomes

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	*p*-Value
Credential Receipt following Random Assignment (%)						
From a college, by Q24 (NSC)						
Associate degree or higher	9.5	11.3	−1.8	1.2	−15.7	0.152
Any credential received after 8+ months of FTE enrollment	12.1	13.3	−1.2	1.3	−9.2	0.362
Any college credential	17.5	13.5	+4.0 ***	1.4	29.4	0.005
From various sources (6-year survey)						
A college	25.4	23.6	+1.8	2.3	7.5	0.435
Another education/training provider	40.6	23.8	+16.8 ***	2.4	70.6	<.001
A licensing/certification body	40.2	28.4	+11.9 ***	2.7	41.9	<.001
Any source	70.1	54.4	+15.6 ***	2.7	28.7	<.001
School Enrollment						
At a college (NSC)						
Average total months in Years 1-7	14.2	12.2	+2.1 ***	0.7	17.0	0.002
Enrolled in Q24 (%)	12.5	12.2	+0.4	1.4	2.9	0.792
Enrolled 4+ months *after* receiving a college credential (%)	8.7	7.9	+0.8	1.1	10.4	0.467
Enrolled as of 6-year survey interview (%)						
At a college	13.5	12.3	+1.2	1.7	10.0	0.478
At another education/training institution	4.9	6.2	−1.3	1.3	−21.0	0.312
At any provider	18.5	18.5	+0.0	2.1	0.1	0.995
Enrolled at any provider in 3 years prior to 6-year survey interview (%)	41.2	40.6	+0.6	2.6	1.6	0.810
Sample Size						
Full sample (for NSC statistics)	1,668	871				
Survey sample	1,119	534				

Source: National Student Clearinghouse, PACE six-year follow-up survey.

Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]). Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.
[a] Statistic will be extended through Year 7 later this year.

the four-percentage point increase in receipt of any college credential shown in Exhibit 3-2's third row.[77] The survey also asked about credentials from non-college issuers. Exhibit 3-2 shows substantial positive impacts on credentials from other training providers (17 percentage points) and licensing/certification agencies (12 percentage points). The overall impact on credential receipt from any issuer was 16 percentage points.[78]

As at earlier follow-up junctures, exploratory analyses showed at most small and inconsistent subgroup differences across several NSC-based college outcomes (not shown in exhibit).

3.2.2 Enrollment

For the entire seven-year follow-up period, NSC records show that treatment group members averaged two months more of college enrollment than control group members. As documented in earlier reports, this advantage owes to the former's co-enrollment at local Year Up college partners during Year 1. In Year 2, enrollment was somewhat lower for treatment than control group members as the former prioritized employment. **Enrollment rates for the two groups were virtually identical from Year 3 on**. By the end of the seven-year period (Quarter 27), enrollment rates were 12 percent in both groups (see Supplemental Exhibit 4).

The six-year survey ascertained enrollment at other education/training providers, as well as colleges. Identical fractions of treatment and control group members (19 percent) reported enrollment at any provider as of the survey (Exhibit 3-2, fourth panel).

3.3   Other Life Domains

Jobs providing better pay, benefits, and financial security—and the improved income they create—might have positive radiating effects on other aspects of well-being. This section summarizes findings in several potentially related life domains.

3.3.1 Health

Better jobs and improved financial well-being might boost physical health through a number of channels, including better health care, more time and resources for exercise, positive influences on diet, improved mental health, and reduced substance abuse. The six-year survey mostly did not measure these factors directly,[79] but it did include a general measure of self-reported health.

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[77] Like the three-year survey (Fein et al. 2021), six-year survey estimates show a four-percentage point reduction in receipt of an associate degree or above (not shown in exhibit) that, though only slightly larger than the two-point reduction in Exhibit 3-2, reaches statistical significance (p<.05).

[78] Given the likelihood that respondents misclassified some credential sources, these figures should be taken only as approximate indications of impact by source. For example, as noted in our earlier Year Up reports, young adults had very little exposure to college during the program and often reported that they were not enrolled despite NSC records indicating enrollment. Some may have associated the short-term certificates some college partners granted for Year Up completion as Year Up, rather than college, credentials. Similarly, some strictly exam-based certifications (e.g., for various computer packages) may have been associated with test preparation providers and reported as "seat time" credentials—or, possibly, under both headings.

[79] Statistics in Exhibit 3-1 show that Year Up did not affect health insurance coverage—though it still might have affected the quality of coverage and care actually received. As reported in Section 3.3.2,

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Analysis of the latter hints at a possible shift from "fair" to "very good" health, but the shift is very small (top rows of Exhibit 3-3).

Exhibit 3-3:   Impacts on Various Other Life Domains as of the Six-Year Survey Interview

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error		*p*-Value
Self-Reported Health					**Relative Impact (%)**	
Percent reporting (%)						
Excellent health	26.80	27.21	−0.41	2.34	−1.5	.860
Very good health	48.30	44.64	+3.65	2.69	8.2	.174
Fair health	22.57	26.43	−3.86*	2.31	−14.6	.096
Poor health	2.33	1.71	+0.62	0.72	36.3	.387
All respondents	100.0	100.0				
Challenges, Stress and Social Support					**Effect Size**	
Index of life challenges (mean score for 1-5 scale across 5 items)	1.44	1.49	−0.05*	0.03	−0.09	.083
Index of perceived stress (mean score for 1-5 scale across 4 items)	1.94	1.97	−0.04	0.04	−0.04	.398
Index of social support (mean score for 1-4 scale across 10 items)	3.68	3.67	+0.02	0.02	0.04	.491
Living Arrangements and Childbearing					**Relative Impact (%)**	
Living with: (%)						
Parents	36.2	40.4	−4.2	2.6	−10.4	.106
Spouse	15.0	15.2	−0.1	1.9	−0.8	.952
Spouse/partner	30.8	31.5	−0.7	2.5	−2.1	.787
Own/partner's child	28.8	28.6	+0.2	2.3	0.8	.918
Had/partner had birth since random assignment or is currently pregnant (%)						
Women	34.0	28.9	+5.1	3.8	17.6	.178
Full sample	24.6	22.6	+2.0	2.2	8.8	.374
Sample size						
Survey respondents	1,119	534				

Source: PACE six-year follow-up survey.
Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Statistics under Relative Impact represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]). Effect sizes represent the impact as a percentage of the control group standard deviation Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

3.3.2   Challenges, Stress, and Social Support

The next panel shows a small reduction in life challenges, based on an index of five situations that could affect performance of important responsibilities.[80] There was no effect on standard

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the program had a very small positive effect on an index of life challenges that included two health-related items.

80   This index averaged responses to five items asking about the frequency that different situations interfered with school, work, job search, or family responsibilities. Response categories ranged from

indices of perceived stress or access to social supports that can help in coping with life challenges. The effects at six years are very similar to findings on the same outcomes based on the three-year survey.

3.3.3 Living Arrangements and Childbearing

Analyses of three-year survey data showed a small (four percentage point) reduction in the percent of sample members who were living with a spouse—a reduction concentrated mostly among women—and a suggestive seven-point reduction in the fraction of young men living with their parents.[81]

Analyses of six-year survey show no effects on living arrangements or childbearing for the overall sample (Exhibit 3-3). The results hint at a small reduction in the fraction living with their parents (four percentage points) for the overall sample, but at $p=.109$ this impact falls slightly above the 10-percent significance threshold). There were no signs of gender differences in impacts on family formation outcomes at six years.[82]

Other results not shown in Exhibit 3-3 indicate that, between the two surveys, treatment and control group members experienced similar declines in the fraction living with parents, while the fraction living with a spouse did not change. The fraction of women reporting a birth since random assignment increased by about 10 percentage points in both groups.[83]

1=never to 5=very often. The situations included difficulties with childcare arrangements, transportation, alcohol or drug use, an illness or health condition, and other situations.

[81] Neither the overall impact nor gender differences for living with parents was statistically significant at three years, although the negative impact was statistically significant for men.

[82] Results not shown in exhibit. The second to the last row of Exhibit 3-3 shows that the impact on fertility for women (five percentage points) was somewhat higher than for the overall sample (two percentage points), but the gender difference was not statistically significant ($p=.276$, not shown).

[83] The three-year survey did not ask men about births to their partners.

4. Influence of COVID-19 on Year Up's Impacts

The follow-up quarters analyzed in prior chapters extend beyond the onset of the COVID-19 pandemic. These time intervals do not allow us to pinpoint how impacts may have changed after onset, however, since—as explained below—follow-up quarters correspond to different calendar quarters for different cohorts. This chapter examines impacts in successive calendar quarters to explore possible pandemic effects.

As mentioned in Chapter 1, COVID-19 triggered extensive job losses in the initial months following its March 2020 onset.[84] Although many jobs returned over the course of the year, unemployment remained above pre-pandemic levels at least through June 2021 (the end of this report's observation period). Unemployment Insurance (UI) claims also soared—the result of heavy job losses generally and the extension of UI coverage to gig workers in the March 2020 Coronavirus Aid, Relief, and Economic Security Act (CARES) Act.[85,86]

Employment declines were especially large in retail and hospitality occupations—and comparatively small in occupations that could be done from home (with increased demand in technology and other sectors catering to the stay-at-home population).[87] Due to their dependence on jobs in hard-hit occupational sectors, young adults, racial and ethnic minorities, and adults with less education were particularly vulnerable.[88] In addition to relatively large employment declines, COVID-19-related illnesses and deaths also were more prevalent in low-income and minority communities.[89]

Factors related to these inequities also may have led to different effects on the economic situations of Year Up treatment and control group members. Section 4.1 of this chapter outlines the possible implications for program impacts.

As mentioned above, detecting pandemic-related shifts requires analyzing impacts in successive *calendar quarters*. Because random assignment was staggered over a one and a half-year period, different sample members reached 2020Q2 – the first full post-onset quarter – at different follow-up durations. In 2020Q2, sample members could have been in follow-up quarters 22, 24, 26, or 28 depending on whether they were randomly assigned in 2013Q1, 2013Q3, 2014Q1 or 2014Q3, respectively. Analyses in this chapter reorganize the data to support analysis of impacts in successive calendar quarters, pooling across cohorts at different

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84   For employment trends through June 2021, see https://www.bls.gov/news.release/pdf/empsit.pdf.

85   For unemployment claims and receipt in 2020-2021, see https://www.dol.gov/ui/data.pdf.

86   The CARES Act legislation can be found at https://www.congress.gov/bill/116th-congress/house-bill/748.

87   See Brodeur et al. (2021) and Hershbein and Holzer (2021).

88   See Hershbein and Holzer (2021), Milovanska-Farrington (2021), and https://www.bls.gov/spotlight/2022/demographic-changes-in-employment-during-the-pandemic/pdf/demographic-changes-in-employment-during-the-pandemic.pdf.

89   See https://covid19.emory.edu/national-report and https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html.

durations of exposure to the pandemic in each quarter. We test for shifts in regression-adjusted impacts on average earnings, employment, average UI benefits, and UI receipt before and after pandemic onset.

Section 4.1 identifies the mechanisms by which the pandemic might have affected impacts. Sections 4.2 and 4.3 analyze impacts by calendar quarter for the overall sample and for subgroups, respectively. Section 4.4 examines whether pandemic-related shifts affected net impacts on average quarterly earnings in follow-up Quarters 23-24, the study's confirmatory outcome. Finally, Section 4.5 summarizes the findings.

4.1   Anticipated Pandemic Effects

Findings in Chapter 2 showed that employed treatment group members were more likely to work in IT and financial services occupations, and less likely to work in the retail and service sectors, than employed control group members (Exhibit 2-6). This shift to jobs better suited to remote work (and thus more resistant to pandemic-related layoffs) may have conferred particular advantages during the downturn.

To the degree that treatment group members held jobs more resistant to the downturn, we expect that earnings declines would be smaller than in the control group, causing impacts to rise. Relatedly, smaller increases in unemployment benefits for treatment than for control group members imply increasing negative impacts on benefits. We might expect such effects to be most pronounced in the second and third quarters of 2020, when pandemic restrictions on economic activity and declines in employment were at their height.

Effects also might vary across subgroups. Prior to the pandemic, Year Up's impacts tended to be smallest for the most disadvantaged young adults—notably those with lower high school grades and no college experience, with a high level of depressive symptoms, or who identified as Black or Hispanic. As discussed above, these groups tended to experience the largest pandemic-related declines in employment. Year Up's more limited ability to move these groups into program target occupations implies smaller pandemic effects (since treatment and control groups are more likely to experience similar employment declines). Conversely, treatment group members in subgroups with the largest pre-pandemic impacts may have been more likely to be working in downturn-resistant jobs (compared to their control group counterparts).

This reasoning suggests that subgroup differences in impacts may have widened after the pandemic's onset in the first quarter of 2020.

4.2   Impacts Before and After Onset

Exhibit 4-1 graphs levels (at left) and impacts (at right) for average earnings (top) and employment (bottom) in calendar quarters extending from 2018Q1 to 2021Q2. To assess the pandemic's influence, we compared impacts in each of quarters 2020Q1-2021Q2 to the

Exhibit 4-1: Impacts on Average Earnings and Employment by Calendar Quarter (Post-COVID Onset Quarters Shaded)
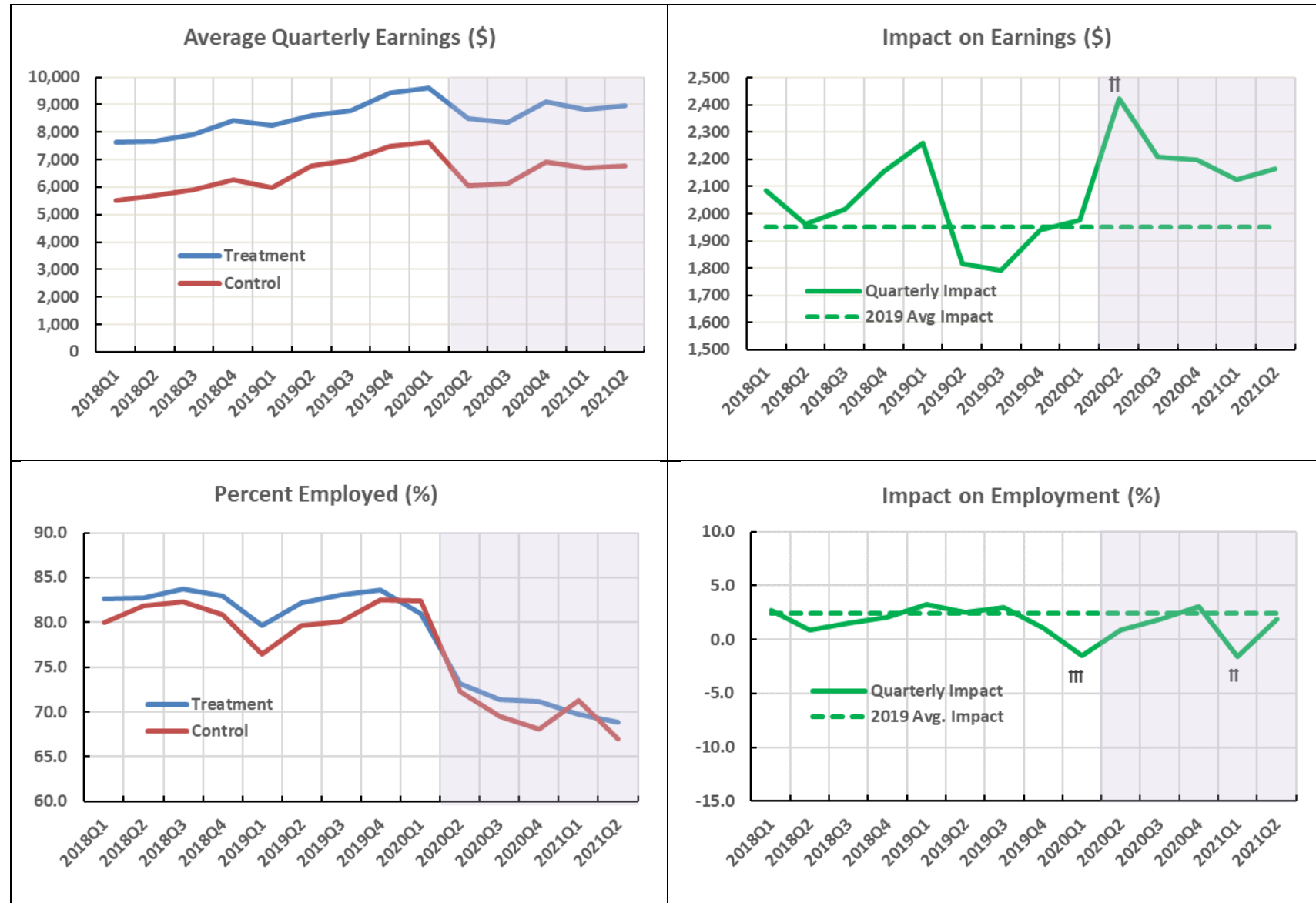
Note: Cross symbols indicate whether the *difference* between the 2019 average impact and each quarterly impact from 2020Q1 on is statistically significant at the: ⽻ 10-percent, ⽻⽻ 5-percent level, ⽻⽻⽻ 1-percent level. Supplemental Exhibit 5 provides the underlying statistics for this exhibit.

average quarterly impact in 2019. Post-onset quarters with statistically significant differences in impacts from 2019 are identified using cross symbols.[90]

During the two years preceding the pandemic (2018Q1-2020Q1), average earnings increased gradually and to nearly identical degrees in both the treatment and control groups.[91] Accordingly, the difference between the two groups' average earnings (i.e., impact) changed little. (Impacts fluctuate somewhat in early and mid-2019, possibly due to irregularities in the timing of wage record reporting in some states.[92]) Impacts just before pandemic onset in 2020Q1 ($1,976) remained nearly identical to the average quarterly impact for 2019 ($1,952).

Average earnings fell sharply in both groups in 2020Q2 after the pandemic's onset. Because the decline was smaller for treatment than for control group members, however, **Year Up's earnings impact increased to $2,424—$472 above the average impact for 2019 (statistically significant at p=.036).** Impacts fell somewhat after 2020Q2 but remained above 2019 levels, albeit by amounts that were not statistically significant.

Employment rates also fell swiftly in 2020Q2 and to the same degree for both groups (bottom panel of Exhibit 4-1). Accordingly, **employment impacts remained small and mostly insignificant throughout the period.**

It is unclear why the pandemic might have affected impacts on average earnings but not employment. One possibility is that because the employment measure reflects any work during the quarter, even short spells, it is a less sensitive measure of the *amount* of work than total quarterly earnings. Analyses in Chapter 2 also found at most small employment impacts concentrated in earlier follow-up years.

Impacts on unemployment benefits increased sharply in 2020Q2. Before the pandemic, average benefit amounts and receipt for both the treatment and control groups were very low, and impacts were mostly statistically insignificant (see Exhibit 4-2). In 2020Q2, benefit levels and receipt rose steeply in both groups, but more so for control group members. The latter's average benefits jumped from $82 to $1,671, and receipt climbed from 4 to 27 percentage points. By comparison, in the treatment group benefits rose from $107 to $1,306 and receipt increased from 5 to 20 percentage points.[93]

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[90]   Supplemental Exhibit 5 provides the underlying statistics for Exhibit 4-1.

[91]   The increase was about $2,100 in both groups.

[92]   As seen more clearly in Supplemental Exhibit 5, average earnings were anomalously high in 2018Q4 and low in 2019Q1 for both the treatment and control group, though somewhat more so for the former. Accordingly, impacts were relatively high in 2018Q4 and 2019Q1 ($2,203 and $2,301, respectively) and relatively low in 2019Q2 and 2019Q3 ($1,860 and $1,837, respectively). Modest increases in earnings for both groups over most of 2018-2019 suggest that impacts were probably constant during this period and that the anomalous estimates reflect fluctuations in wage reporting.

[93]   See Supplemental Exhibit 5 for statistics underlying Exhibit 4-2.

Exhibit 4-2:   Impacts on Average Unemployment Benefits and Receipt by Calendar Quarter (Post-COVID Onset Quarters Shaded)

Note: Cross symbols indicate whether the *difference* between the 2019 average impact and each quarterly impact from 2020Q1 on is statistically significant at the: Ɨ 10-percent, ƗƗ 5-percent level, ƗƗƗ 1-percent level. Supplemental Exhibit 5 provides the underlying statistics for this exhibit.

As a result, negative impacts on average benefits (-$359) and receipt (-6 percentage points) emerged in 2020Q2. Statistically significant negative impacts extended through 2020Q3 for benefit amounts and through at least 2021Q2 for benefit receipt.[94] Statistical tests confirm that these negative impacts fell significantly below the small average impacts for 2019 (summarized by cross symbols in Exhibit 4-2).

Averaging differences from 2019 for the five fully post-onset quarters, changes in earnings and UI benefit impacts were roughly offsetting. Quarterly impacts in 2020Q2-2021Q2 averaged $272 higher than 2019 levels for earnings and $219 lower for UI benefits.[95]

In contrast, post-onset shifts in impacts on employment and UI receipt were less consistent. While impacts on employment remained small and statistically insignificant, substantial, statistically significant negative impacts for UI receipt persisted through 2021Q2.

The more pronounced shifts in UI receipt could arise from differences in the kinds of jobs included in NDNH's unemployment benefit and wage records. After the CARES Act extended unemployment eligibility to gig workers in March 2020, the NDNH database began receiving records of such benefit payments. Meanwhile, NDNH wage records continued to exclude many gig workers, per pre-pandemic reporting practices. If the kinds of gig jobs held by control group members were more vulnerable to the downturn than those held by treatment group members, benefit records would tend to capture the widening gap between treatment and control group members' fortunes more fully than wage records.[96]

4.3   Subgroup Differences in Pandemic Influences on Impacts

Might the protective effects described above have varied across subgroups? Substantial pre-pandemic variability in earnings impacts make differences in pandemic influences plausible. As mentioned in Section 4.1, if treatment group members in subgroups with larger impacts were more likely to be working in Year Up target occupations—which tended to be more downturn-resistant—their relative advantage may have increased to a greater degree than among more disadvantaged subgroups.

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[94]   The decline in average benefit amounts in 2020Q4 may coincide with the end of extended benefit eligibility for some recipients whose receipt began soon after pandemic onset.

[95]   Calculated by averaging changes from 2019 for 2020Q2-2021Q2 in Supplemental Exhibit 5.

[96]   If gig employment was more likely for control than treatment group members—and under-covered in NDNH wage records—the result might be upward bias in impact estimates for NDNH employment and earnings. The close agreement between NDNH-based impacts and analogous estimates from the 18-month and 3-year surveys—which did cover gig employment—documented in our earlier reports suggests minimal, if any, bias of this kind (the 6-year survey did not include questions supporting such analysis). Somewhat sharper post-COVID effects for unemployment benefits than earnings in the NDNH data could reflect differences in the occupational sectors represented in the two groups' under-covered jobs. If under-covered jobs in IT were more resistant to the downturn than uncovered service sector jobs (as is likely), we might expect greater benefit uptake among control, than among treatment, gig workers.

To explore this hypothesis, we compare trends in impacts before and after pandemic onset across subgroups, concentrating on five characteristics with marked subgroup differences in pre-pandemic earnings impacts: age, high school grades, educational attainment, race-ethnicity, and level of depressive symptoms.[97] As in the last section, the analysis begins by estimating differences between the average quarterly impacts for 2019 and average impacts in each of 2020Q1-2021Q2 for individual subgroups, testing differences for statistical significance. The analysis then tests whether these differences (rough proxies for pandemic influence on impacts) vary significantly across subgroups. Supplemental Exhibits 6 and 7 provide details underlying the results summarized in Exhibit 4-3 for average earnings and UI benefits, respectively.

The findings suggest that the pandemic's influence on impacts varied by race-ethnicity, high school performance, and educational attainment. The upper left-hand panel of Exhibit 4-3 shows earnings impacts in successive calendar quarters for each race-ethnicity group. Compared to average impacts in 2019, impacts increased sharply in 2020Q2 for young adults identifying as non-Hispanic White/other or Hispanic but not for those identifying as non-Hispanic Black (cross symbols identify significant changes from 2019 levels). While continuing to climb after 2020Q2 for Whites/others, impacts remained at 2019 levels for Blacks and Hispanics. Statistical tests show the increase over 2019 for Whites/others to be significantly larger than the increase for Blacks in 2020Q2 and 2002Q4-2021Q2 and larger than the increase for Hispanics in 2021Q2 (see Supplemental Exhibit 6). In 2021Q2, the increase over 2019 for Whites/others ($1,805) was $1,905 larger than the increase for Blacks (-$100) and $1,755 larger than the increase for Hispanics ($50).

Trends in UI benefit impacts by race-ethnicity closely mirrored trends for earnings. Before 2020Q2, impacts on benefits were close to zero in all three race-ethnicity groups (upper right-hand panel of Exhibit 4-3), as were average benefit levels.[98] In 2020Q2, however, impacts for Whites/others turned sharply negative, and they remained significantly below 2019 levels through 2021Q2. The shift results from a larger increase in UI benefit receipt for control than treatment group members. In contrast, the pandemic's onset did not bring statistically significant shifts in UI benefit impacts for Blacks and Hispanics. Statistical tests show that differences between large changes for Whites and negligible changes for Blacks and Hispanics were statistically significant in most post-onset quarters.

The bottom two panels of Exhibit 4-3 suggest that Year Up helped young adults with stronger educational backgrounds weather the pandemic better than those with weaker backgrounds. Earnings impacts (left side of exhibit) climbed above 2019 levels most noticeably in 2020Q2 for

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[97] Although earnings *impacts* did not differ by age, age differences in pandemic influences seemed possible because *trends* in impacts did differ by age (see Section 2.4.1). Impacts *diminished* among the youngest (under 20) enrollees while they *increased* among the oldest (23-24) ones from Quarters 6-7 to Quarters 23-24. Although global tests showed differences in earnings impacts across Year Up's eight local offices, office sample sizes were small, and the global difference derived mainly from exceptionally large impacts at one office. Hence, we did not examine trends in impacts by office.

[98] Supplemental Exhibit 6 provides statistics underlying graphs for UI benefits in Exhibit 4-3.

Exhibit 4-3:   Impacts on Average Quarterly Earnings and UI Benefits by Calendar Quarter for Subgroups (Post-COVID Onset Quarters Shaded)

Impact on Earnings by Educational Attainment ($)

Legend: 1+ Yr Coll, <1 Yr Coll, HS

Impact on UI Benefits by Educational Attainment ($)

Legend: 1+ Yr Coll, <1 Yr Coll, HS

Note: Cross symbols indicate whether, for each subgroup, the *difference* between the 2019 average impact and each quarterly impact from 2020Q1 on is statistically significant at the: ⇑ 10-percent, ⇑ 5-percent level, ⇑⇑⇑ 1-percent level. Supplemental Exhibit 5 provides *p*-values for tests of *between-subgroup differences* in changes over 2019 discussed in the text, as well as other statistics underlying this exhibit.

young adults with better high school grades and 1+ years of college at baseline. The increase is statistically significant and limited to 2020Q2 for those with better grades. Impacts for those with worse high school grades remain at 2019 levels through 2020 but appear to rise somewhat in early 2021.[99] Impacts by educational attainment also show increased earnings impacts after pandemic onset for the most highly educated sample members—those with 1+ years of college at baseline. Though falling somewhat above the 10 percent significance threshold, these increases are notable because they mirror shifts in UI benefit impacts by educational attainment and persist through 2021Q2.

Shifts in UI impacts (lower right panel of Exhibit 4-3) also indicate protective effects for young adults with stronger educational backgrounds. Benefit impacts fell sharply in 2020Q2 for sample members with mostly As and Bs in high school grades but changed little for those with worse grades. The difference in declines in benefit impacts between the two groups ($539) is statistically significant ($p=.027$) in 2020Q3. As in the earnings data, impacts for the A's and B's group return to 2019 levels in the last few quarters.

Trends in UI benefit impacts by educational attainment also favor the highest education category, falling consistently below 2019 levels from 2020Q2 on by amounts that often exceed lower attainment groups.

Taken together, findings in this section suggest that Year Up's protective effects were largest for young adults identifying as non-Hispanic White/other and for those with stronger educational backgrounds. Results for two other characteristics examined—age and level of depressive symptoms—show little evidence of differential pandemic influences (see Supplemental Exhibits 6 and 7).

4.4   Did COVID-19 Affect Impacts on the Confirmatory Outcome?

Although the pandemic induced modest shifts in impacts, it had little effect on impacts on average quarterly earnings in follow-up quarters 23-24—the study's confirmatory earnings outcome. The purpose of selecting a single confirmatory outcome is to test Year Up's overall success in achieving its most important goals. Although these quarters preceded the pandemic for most sample members, for 21 percent they occurred immediately after onset. Good program developers anticipate ups and downs in the economy and try to design training that will be effective under varying conditions. It is nonetheless unclear if their success should be judged in the midst of an unprecedented shock to the economy.

Comparing impacts for sample members who reached Quarters 23-24 before and after the pandemic's onset can help to ascertain the degree to which overall impacts approximate effects that might be expected in more normal times. This analysis compared impacts at the same follow-up durations for successive study cohorts—specifically, young adults randomly assigned in 2013, 2014Q1 and 2014Q3. Quarters 23-24 fell in 2020Q2-Q3—just after onset—for the

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[99]   The increase over 2019 in 2020Q2 is statistically significant ($p=.042$) and differs from the change for those with better grades ($p=.039$).

2014Q3 cohort, but for earlier enrollees these quarters preceded onset. Earnings impacts in Quarters 23-24 were very similar for the three cohorts (results not shown).[100]

4.5   Summary

Results in this chapter suggest that the pandemic had positive effects on earnings impacts and negative effects on unemployment benefit impacts and that these effects were roughly offsetting and varied by race-ethnicity and education.

It is unclear whether similar protective effects would occur in more typical economic downturns. Other recent recessions also have favored the information and technology-related sectors over services and manufacturing and have had especially negative effects on young adults with little or no college. But the pandemic's suddenness, its particularly strong effects on retail and services, and the accompanying rapid expansion of UI coverage were marked departures from past recessions.

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[100]   In itself, this finding does not rule out pandemic effects on the confirmatory outcome since similar impacts in Quarters 23-24 for different cohorts could be a departure from previous (dissimilar) impacts. Further inspection shows that impacts in Quarters 20-22 were about the same for the 2014Q1 and 2014Q3 cohorts and somewhat higher for these cohorts than for 2013 enrollees (results not shown). Taken together the findings indicate that the pandemic had little net effect on earnings impacts in Quarters 23-24.

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5.   Cost-Benefit Analysis

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This chapter extends the Year Up cost-benefit analysis (CBA) to cover a seven-year follow-up period. The analysis estimates Year Up's financial **benefits** and compares them to the **costs** incurred to produce these benefits. A program whose benefits exceed its costs is said to have a positive **net benefit** and represents a gain, whereas the opposite is a **net loss** (see "Key Terms" box).

CBAs typically consider benefits and costs from the perspectives of program participants, government, the rest of society, and society as a whole (summing across perspectives). Benefits to these groups arise largely through the direct and indirect effects of program-related increases in participants' earnings. The main costs arise from changes in spending on education, training, and related supports.

This CBA adds a fifth perspective: employers. Year Up is unusual among programs for low-income populations for its success in securing funding from companies, who pay a fee to Year Up for each intern they receive (amounting to 59 percent of Year Up's total revenues).[101] As for-profit companies, employers' willingness to pay a fee to Year Up for each intern implies that they expect some financial return. This CBA therefore must attach some value to the benefits employers receive from interns.

> **Key Terms in the Cost-Benefit Analysis**
>
> - **Cost:** The average cost per treatment group member minus the average cost per control group member for a given component.
>
> - **Total cost:** The sum of all cost components.
>
> - **Benefit:** The average benefit per treatment group member minus the average benefit per control group member for a given component.
>
> - **Total benefit:** The sum of all benefit components.
>
> - **Net benefit or loss:** Total benefits minus total costs; the final combined outcome of the cost-benefit analysis.
>
> - **Perspective:** The CBA's ultimate focus is on the net benefits to *society as a whole*. The analysis also considers costs and benefits that accrue to five societal subgroups: *study participants*, *employers*, the *federal government, state and local governments*, and the *remainder of society*.

To preview the main findings, **the CBA estimates a $33,884 net benefit to society per treatment group member over seven years—more than twice the $15,349 net benefit reported for five years** in Fein et al. (2021). The new figure is the difference between Year Up's updated estimated average benefit per individual ($56,644) and its average costs ($23,135). As discussed at the end of this chapter, the gain compares favorably with estimates from prior evaluations of workforce training programs. It represents a $2.46 return to society for each dollar spent on Year Up.

The estimates are conservative in several respects. First, large earnings impacts persisted undiminished to the end of the seven-year analysis period, suggesting that additional benefits are likely to accrue in the longer-term (while it is unlikely that costs will increase). Second, the analysis does not monetize possible wider societal benefits in other life domains over the

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[101] Private philanthropy accounts for virtually all of the remainder (39 percent); Year Up relies very little on government funding (2 percent).

longer-term. Finally, the estimates assume a return of 50 percent on employers' payments for Year Up interns, whereas actual returns could be higher.

The chapter has five sections. Section 5.1 provides an overview of the CBA accounting framework. Two following sections present estimates of costs (Section 5.2) and benefits (Section 5.3). Section 5.4 discusses benefits not included in the analysis. Last, Section 5.5 compares costs and benefits to estimate the net benefit for society as a whole, discusses uncertainty in the CBA estimates, and compares the findings to those for other workforce training programs.

5.1 The Cost-Benefit Framework

As summarized in Exhibit 5-1, the cost-benefit framework represents costs and benefits from the perspectives of specific stakeholders and across all stakeholders. Costs and benefits represent *differences* in average values between the treatment and control groups—that is, the amount Year Up adds or subtracts to each cost or benefit component. Costs and benefits are expressed per treatment or control group member. For each perspective, Year Up's net benefit is the difference between benefits and costs.

Exhibit 5-1: Hypothesized Costs and Benefits Assessed in the CBA

Component	Participants	Employers	Government Federal	Government State/ Local	Rest of Society[a]	Society as a Whole (sum)
Costs						
Year Up services	0	+	+	+	+	+
Education and training and supportive services outside Year Up	–	0	–	–	–	–
Total Cost	**–**	**+**	**–**	**–**	**+**	**+**
Benefits						
Earnings	+	0	0	0	0	+
Fringe benefits	+	0	0	0	0	+
Taxes	–	0	+	+	0	+
Public benefits	–	0	+	+	+	+
Work-related expenditures	–	0	0	0	0	–
Year Up stipend[b]	+	0	0	0	0	+
Corporate partner (employer) revenue gains	0	+	0	0	0	+
Nonmarket time	-	0	0	0	0	-
Deadweight loss	0	0	0	0	+	+
Total Benefit	**+**	**+**	**+**	**+**	**+**	**+**
Net Benefit						
Net Benefit = Total Benefit − Total Cost	+	?	+	+	-	+

Note: Symbols in each cell indicate whether the expectation is for a net increase (+), decrease (−), zero effect (0), or uncertain effect (?) in costs or benefits from specified perspectives. For definitions and measures for concepts in this chart, see Fein et al. (2021) and Judkins et al. (2021).

[a] Private philanthropy is the main stakeholder in this category in the Year Up analysis.

[b] The cost of providing this stipend is included in the "Year Up services" row.

Earlier PACE reports discuss definitions and measures for all components in this framework.[102] Supplemental Exhibit 9 at the end of the current report summarizes specific inputs to the updated analyses.

5.2   How Much Did It Cost?

Exhibit 5-2 shows cost estimates for each major cost component and for all components summed. The seven-year estimates assume no additional costs after five years and are thus the same as reported in Fein et al. (2021). The bottom row shows estimated costs for treatment and control groups of $33,906 and $10,771, respectively, and a difference (i.e., total Year Up-related cost) of $23,135. This section discusses each cost element and how costs are allocated across stakeholders.

Exhibit 5-2:   Year Up Treatment and Control Group Members' Cost per Participant at Seven Years

Cost Component	Cost per Treatment Group Member ($)	Cost per Control Group Member ($)	Cost ($)
Year Up services	27,158[a]	0	27,158
Stipends	*6,885*		
All other direct services and administrative costs	*20,273*		
Education and training and supportive services outside Year Up	6,748	10,771	−4,023
Education and training enrollment	*6,748*	*9,986*	
Supportive services in community		*785*	
Total cost	**33,906**	**10,771**	**23,135**

Source: Year Up program financial records. National Student Clearinghouse database. Year Up enrollment database. PACE follow-up surveys. Delta Cost Project Database. Integrated Postsecondary Education Data System. Research team investigation and approximations of costs of alternative services accessed by the control group.

[a] This figure represents the average cost per treatment group member. It reduces Year Up's $28,280 average per participant cost to account for the four percent of treatment group members who dropped out after random assignment and never received services.

***Year Up Services:* The cost of Year Up services was $27,158 per treatment group member (Exhibit 5-2, first panel).**[103] This estimate includes $20,273 for staffing, facilities, and small payments to college partners and $6,885 for stipends.

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[102]   See Fein et al. (2021) for a more detailed presentation of concepts and Judkins et al. (2021) for additional technical detail underlying the analyses.

[103]   Year Up costs are on the high end of the spectrum for workforce training programs studied in recent decades. For example, a 2003 meta-analysis of 15 government-sponsored youth training programs reported an average cost of $12,479, with a standard deviation of $5,728 (Greenberg et al. 2003). A recent study of the relatively low-intensity, national WIA and Workforce Innovation and Opportunity Act programs found per-person costs ranging from $1,127 for the core program to $2,376 for the full program (Fortson et al. 2017). Average costs for other sectoral training programs were $11,156 for Project QUEST (Roder and Elliot 2019) and $6,231 to $7,929 for programs studied in the WorkAdvance demonstration (Hendra et al. 2016). Estimates for more intensive youth programs include $19,824 for YouthBuild (Cohen and Piquero 2015), $24,703 for Job Corps (Schochet et al. 2006 and Greenberg et al. 2003), and $14,864 for the National Guard Youth ChalleNGe program (Perez-Arce et al. 2012). These figures are adjusted to 2014 dollars.

Education and Training and Supportive Services outside Year Up: **The estimated average gross per-person costs for non-Year Up education and training and supportive services were $6,748 and $10,771 for treatment and control group members, respectively, leading to an estimated reduction of $4,023 due to Year Up** (Exhibit 5-2, panel 2). The savings arise mainly from negative impacts on college enrollment not related to Year Up during Year 1 and Year 2 of the study.[104] The figures also include an estimated $785 per control group member in costs for additional support services related to employment and training.[105]

Exhibit 5-3 shows how these costs are distributed across stakeholders. The analysis treats Year Up revenue from different sources as "costs" to the corresponding stakeholder category. Based on Year Up financial reports, the first row allocates 59 percent of the costs to Year Up's corporate partners and 39 percent to philanthropic donors (in the "rest of society" column). Two percent of the Year Up program's gross costs are attributed to government agencies.[106]

Exhibit 5-3:   Cost per Participant by Perspective at Seven Years

Cost Component	Perspective					
	Participants	Employers	Government, Federal	Government, State/Local	Rest of Society	Society as a Whole (sum)
Costs ($)						
Year Up services	0[a]	16,118	246[b]	245	10,549	**27,158**
Education and training and supportive services outside Year Up	−169	0	−1,284	−1,981	−589	**−4,023**
Total Cost	**−169**	**16,118**	**−1,038**	**−1,736**	**9,960**	**23,135**

Source: PACE cost data interviews. Year Up program financial records. National Student Clearinghouse database. Year Up enrollment database. PACE follow-up surveys. Delta Cost Project Database. Integrated Postsecondary Education Data System. Research team investigation and approximations of costs of alternative services accessed by the control group.

[a] Program participants forgo earnings to participate in the program, as addressed in Section 5.3.

[b] Detailed information on the share of federal versus state/local grant funding for Year Up is not available, so the CBA assumes an even split. Similarly, costs of supportive services for employment and training in the community are split evenly between federal and state/local governments.

The average cost born by employers is $16,118 per treatment group member. This cost to employers occurs from fees they pay to Year Up for each intern. Since some program enrollees do not progress to internships, the average payment per treatment group member, $16,118, is less than the average $24,700 fee that companies pay per intern.

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[104]   Estimates for average costs involved multiplying the number of months each treatment and control group member was enrolled by unit costs for the institutions they attended. Institution-specific cost data in the IPEDS were the basis for these unit costs. Supplemental Exhibit 9 provides additional details.

[105]   This estimate assumes that all receipt of supportive services that treatment group members reported in the 18-month survey reflects participation in the Year Up program. This is reasonable because ninety-six percent of treatment group participants enrolled in Year Up.

[106]   Absent data on the sources of government grants to Year Up, the estimates allocate half to federal and half to state and local government sources.

Year Up results in education and training and supportive services-related savings of $1,284 for federal and $1,981 for state and local governments, for a total savings of $3,265. These savings arise from reductions in state and local payments to community colleges and other public institutions and reductions in federal grants (e.g., Pell). Governments also provide funding for supportive services for employment and training. Because governments spent more overall on services to control group members than to treatment group members, the total row shows a net savings in these columns ($1,038 and $1,736).

The $10,549 Year Up-related cost in the "rest of society" column reflects costs borne by stakeholders other than private companies—mainly philanthropy. Estimates for the non-Year Up education and training row show $589 in savings in this column, arising from reduced spending on scholarships for low-income student (e.g., out of college endowments). The same row also shows a small ($169) reduction in out-of-pocket spending for education-related expenses by participants. Control group participants paid more out-of-pocket tuition and fees for education and training than did treatment group participants.

In summary, as shown in the total row of Exhibit 5-3, employers and private philanthropy bore all of the program's net costs (at an average of $16,118 and $9,960 per participant, respectively), while participant and government stakeholders experienced cost reductions.

5.3   What Was the Return?

This section extends estimated benefits in Fein et al. (2021) to cover a seven-year follow-up period. The presentation considers benefits for each stakeholder in turn to better discuss the distinctive sources of benefits for varying perspectives.

5.3.1   Participant Perspective

Benefits to participants arise mainly from Year Up's positive impacts on earnings and, to a lesser degree, from program stipends. The estimated $30,056 benefit from increased earnings (Exhibit 5-4, row 1) is the net present value (NPV) of impacts over the seven-year follow-up period.[107]

Increased earnings also affect several other sources of income for participants (see middle rows of Exhibit 5-4). Most notably, increased earnings generate an estimated increase of $12,473 in fringe benefits from employers—benefits such as paid vacation, holidays, sick leave, and retirement contributions. In the other direction, participants lose some of the earnings gains to taxes (totaling $10,324 across federal income, payroll, state income, and state/local sales taxes), and they receive somewhat lower public benefits (an estimated $3,903 loss).[108] Benefits

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[107] The NPV is smaller than the overall seven-year earnings impact in Chapter 2 ($38,391) because the CBA applies a 5 percent annual discount to earnings in successive follow-up years before estimating impacts. See Fein et al. (2021) and Dastrup et al (2017) for discussion of this assumption.

[108] Estimated changes in taxes are based on calculations from the NBER tax simulation program Taxsim (See Feenberg and Coutts 1993, and http://www.nber.org/taxsim) that calculates tax liabilities based on individual profiles that include earnings and household composition. The analysis estimates benefit reductions by multiplying survey-reported rates of receipt of TANF, SNAP and WIC, UI, housing assistance, and Medicaid to external estimates of average benefit reduction resulting from

also include an estimated average total of $6,885 in Year Up stipends for the program year.[109] Finally, we reduce total benefits by $4,135 to reflect the value of foregone nonmarket time. Combined with increases in earnings, **the total benefit to participants is $30,661 (Exhibit 5-4, total row).**

Exhibit 5-4:   Benefits from Participant Perspective at Seven Years

Benefit Component	Treatment Group ($)	Control Group ($)	Benefit ($)
Total earnings in Years 1-7[a]	142,949	112,892	30,056
Fringe benefits	59,319	46,846	12,473
Taxes			
Federal income	−9,743	−4,334	−5,409
Federal payroll, employee	−12,802	−10,477	−2,325
State income	−4,744	−3,122	−1,622
State/local sales	−4,553	−3,585	−968
Public benefits[b]			−3,903
Work-related expenditures[b]			−391
Year Up stipend	6,885	0	6,885
Nonmarket time			−4,135
Total benefits to participants			**30,661**

Source: National Directory of New Hires. National Bureau of Economic Research taxsim model (Feenberg and Coutts 1993). State and local tax research resources: https://www.avalara.com/taxrates/en/calculator.html, Consumer Expenditure Survey by Income Quintiles (Table 1203). Congressional Budget Office (2015) marginal effective tax rates.
[a] Earnings are discounted at 5 percent annually in the CBA.
[b] Average receipt of public benefits and work-related expenditures is not estimated; benefit is calculated based on earnings impact.

5.3.2   Employer Perspective

Year Up's success in securing substantial funding from corporate partners makes the employer perspective a novel and important one in this cost-benefit analysis. The program's internship fees generated an average cost to employers of $16,118 per treatment group member. This section considers the benefit to employers from returns on this investment.

Direct estimation of benefits to corporate partners was not within this project's scope. In lieu of such evidence, the analysis incorporates a base assumption drawing on anecdotal evidence of positive returns in the literature and discussions about motives the research team held with a dozen employer employers for the implementation study. As in Fein et al. (2021), the base

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increased earnings for each program applied to the observed earnings impact. The analysis used survey data rather than administrative records to be consistent with the five-year CBA. Note that, although the NDNH administrative records analyzed in Chapter 4 showed smaller increases in UI benefits for treatment than control group members after the COVID-19 pandemic's onset, the bulk of the seven-year follow-up period preceded onset. Consistent with the general absence of employment impacts, as seen in Exhibit 3-1, average quarterly benefits were nearly identical for treatment and control group members ($168 and $167, respectively) over the seven-year period. Accordingly, these benefits had virtually no bearing on cost-benefit results.

[109]   The average stipend per enrolled student in Year Up administrative data was $7,172 (Fein and Hamadyk 2018). The CBA reduces this amount by four percent to account for treatment group members who never enrolled in Year Up (i.e., $7,172 x .96 = $6,855).

assumption posits **a 50 percent return to employers on their internship payments, which translates into a return of $8,059 per treatment group member (see seventh row of Exhibit 5-5).** The analysis also calculated net benefits to society as a whole for assumed employer returns ranging from 0 to 115 percent. Each of the two extremes has important policy implications, as noted below.

Exhibit 5-5: Benefits per Participant by Perspective at Seven Years

Benefit Component	Participants	Employers	Government, Federal	Government, State/Local	Rest of Society	Society as a Whole (sum)
Benefits ($)						
Earnings	30,056					**30,056**
Fringe benefits	12,473					**12,473**
Taxes[a]	−10,324		10,060	2,583		**2,319**
Public benefits[b]	−3,903		4,310			**407**
Work-related expenditures	−391					**−391**
Year Up stipend	6,885					**6,885**
Corporate partner revenue gains (50% ROI)		8,059				**8,059**
Deadweight loss					1,346	**1,346**
Nonmarket time	−4,135					**−4,135**
Total Benefits	**30,661**	**8,059**	**14,370**	**2,583**	**1,346**	**57,019**
Alternate corporate partner revenue gains assumptions						
0%	30,661	0	14,370	2,583	1,346	48,960
115%	30,661	18,536	14,370	2,583	1,346	67,496

Source: National Directory of New Hires. National Bureau of Economic Research taxsim model (Feenberg and Coutts 1993). State and local tax research resources: https://www.avalara.com/taxrates/en/calculator.html, Consumer Expenditure Survey by Income Quintiles (Table 1203). Congressional Budget Office (2015) marginal effective tax rates. Research team estimation.

[a] Federal and state including credits, payroll, and sales. Employer portion of payroll taxes implies additional output/revenue.

[b] TANF, SNAP/WIC, Unemployment Insurance, housing assistance, and Medicaid. Gain to rest of society is due to savings in program administrative costs.

In-depth interviews with 12 employers conducted earlier in the project for the implementation study (Fein & Hamadyk 2018) identified two main reasons for investing in Year Up interns (see box below). First, as profit-maximizers, companies generally invest their resources where they expect at least commensurate returns. Second, increased expectations for companies to behave in socially responsible ways create a possibility for spending based on altruistic considerations. The two motives are not mutually exclusive: spending in the name of corporate social responsibility can have both financial and altruistic motives.

Under the profit-maximizing rationale, employers might see Year Up interns as a means for boosting profitability through more efficient production. One employer summarized this motive by saying "We're an investment company. If it wasn't worth it, we wouldn't do it." Such a result could arise through multiple channels, including the value of work output during internships; savings from a lower-cost pipeline for recruiting and training entry-level workers; reduced costs from turnover; or lower production costs (e.g., by replacing higher-paid workers with lower-paid

workers). Another employer reported that "the benefit for me personally is that [interns] are an awesome source of new hires. … And the six months they are here is like a long interview." In the interviews, employers also expressed that Year Up hires will be a good source of new ideas, more productive in their positions, and add value-enhancing diversity to the workplace.

A growing literature has sought to measure the financial implications of corporate contributions to social programs where the direct benefits are less clear.[110] Under the corporate social responsibility rationale, there are two possible benefits to companies. First, such investments can enhance a company's image and market position, allowing it to increase sales volume and prices in ways that increase profits. Second, companies, and their customers and shareholders, may attach value to the societal contributions of such spending in its own right.

Shareholders may agree to give up profits, employees to accept lower salaries, or customers to pay higher prices for purely altruistic reasons. The company essentially acts as a conduit for philanthropic interests: payments for a program such as Year Up are thus no different from philanthropic donations, from a CBA perspective (i.e., included as a transfer from the donor to the recipient without any added benefit to society). Employers noted this motive in interviews, one saying that "[it's] about 90 percent trying to help the community, because we could get contract workers from professional staffing agencies. But we're a part of the city and they're a part of the city, [so our view is] let's do something good for everybody."

A majority of the dozen employers cited both financial and philanthropic motivations for participating in Year Up. As mentioned at the top of this section, this study's main CBA estimates assume an average financial benefit to employers equaling half the amount they paid Year Up. The bottom panel of Exhibit 5-5 shows the benefits associated with assumed returns to corporate partners of 0 and 115 percent. Although it is unlikely that employers receive no benefit, results for this assumption provide a sense of the benefits that would accrue to society in a world where government assumed responsibility for costs currently borne by employers—one possible approach to scaling. The 115 percent return assumption simulates benefits in a scenario where employers receive a healthy profit on their Year Up investment. It embodies the goal of a Year Up initiative aimed at customizing internships to maximally address the needs of both employers and young adults.[111]

5.3.3 Government and "Rest of Society" Perspectives

Federal, state, and local governments experience gains from increased taxes and reductions in education and training spending. Additional federal government savings arise from reduced expenditures on public benefits and an associated 11 percent reduction in administrative costs. This decline in government expenditures ($4,310 in public benefits in Exhibit 5-5 and $2,774 in

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[110] Kitzmueller and Shimshack (2012) review the theory and empirical evidence on corporate social responsibility (CSR). Fein et al. (2021) cite more recent studies.

[111] For discussions of Year Up's "customer service" initiative, see Fein (2016) and Fein and Hamadyk (2018).

education and training support, the sum of the two government perspectives in Exhibit 5-3) reduced deadweight loss by $1,346—a gain to society as a whole (discussed next).

5.3.4 "Society as a Whole" Perspective

Year Up's total benefit to society as a whole is $57,019 (Exhibit 5-5, total row, last column). The largest portion derives from increased earnings ($30,056; with an accompanying increase in fringe benefits of $12,473), followed by corporate partner revenue gains ($8,059) and Year Up stipends ($6,885). Decreased nonmarket time and increased work-related expenditures generate losses to participants (-$4,135 and −$391, respectively). Changes in taxes and public benefits are largely transfers that net to zero for society as a whole, although an increase in employer payroll taxes and savings in administrative costs result in additional positive benefits to society as a whole. Reduced government expenditures benefit society by reducing deadweight loss (a gain to the rest of society of $1,346).

The alternative assumptions about corporate partner revenue gains affect benefits for society as a whole. The low-end assumption—that corporate partners see no return from participating in the Year Up program (i.e., contributions are pure corporate social responsibility)—reduces total benefits to society as a whole from $57,019 to $48,960. The high-end assumption—a 115 percent return—increases total societal benefits to $67,496.

5.4   Costs and Benefits Not Included

This study covers the costs and benefits most typically included in CBAs. It is important to acknowledge the potential for wider costs and benefits that the analysis does not include. These include possible benefits to participants and society at large from longer-term effects of improved finances and career prospects on outcomes such as criminal justice system involvement, substance abuse, mental health, and child well-being.

Although the six-year survey showed no impacts on wider outcomes, it did not include a number of outcomes that might have cost-benefit implications. This study has yet to measure impacts on criminal justice system involvement or mental health. Effects on more distal outcomes also may take longer than six years to emerge.

Accounting for such effects is unlikely to change the basic conclusion that Year Up was cost beneficial, since any impacts on wider outcomes from increased earnings are likely to be positive.

5.5   Was Year Up Worthwhile Overall?

Having presented Year Up's costs and benefits, it remains to estimate the difference between the two. This section examines basic results for *net benefits* (that is, total benefits – total costs), and discusses their robustness to alternative assumptions and sampling error.

For society as a whole, Year Up produced a net benefit of $33,884 per participant in the first seven years after random assignment (Exhibit 5-6, last column). This figure is the difference between an estimated total benefit of $57,463 and total cost of $23,135 per

participant. It implies a seven-year return of $2.46 for every dollar spent—a sizable increase from the five-year return of $1.66 in Fein et al. (2021).

Exhibit 5-6:   Total Costs, Total Benefits, and Net Benefits of Year Up at Seven Years

CBA Component	Perspective					
	Participants	**Employers**	**Federal Govt**	**State/Local Govt**	**Rest of Society**	**Society as a Whole (Sum)**
Total Cost ($)	−169	16,118	−1,038	−1,736	9,960	23,135
Total Benefit ($)	30,661	8,059	14,370	2,583	1,346	57,019
Net Benefit (Total Benefit − Total Cost) ($)	**30,830**	**−8,059**	**15,408**	**4,319**	**−8,614**	**33,884**

Source: See Exhibits 5-3 and 5-5.

The direction of net benefits varies somewhat by stakeholder. The net result is positive for participants and government and negative for employers (the latter reflecting a conservative 50 percent assumed return to employers for participating in Year Up) and the rest of society (mainly reflecting costs to philanthropy).

These results understate Year Up's total net benefits in two key respects. First, this report's analyses summarize benefits and costs only for an initial seven-year follow-up period. While additional earnings impacts seem likely (large impacts persisted to the end of the seven-year period), there is little potential for additional costs. Second, as discussed in Section 5.4, the analysis does not include the monetary value of possible benefits in wider life domains not yet measured.

To put the current results in context, **Year-Up's $33,884 seven-year net benefit compares favorably to results for other employment and training programs.** For example, a study of Workforce Investment Act (WIA)-funded training by Fortson et al. (2017) estimated a net loss to society of $5,203 per participant for the incremental effect of training, a net gain of $3,636 for the combined effects of training and intensive services, and a net gain of $8,840 for intensive services (all observed over 30 months). For Job Corps, although costs *exceeded* benefits by $16,000 for the overall sample, Schochet et al. (2006) reported a $26,229 lifetime net *gain* for older youth (ages 20 to 24) for whom earnings impacts were more positive. Schaberg and Greenberg's (2020) analysis of WorkAdvance sites found that three of the four programs studied produced positive lifetime net benefits to society: Towards Employment ($5,487), Madison Strategies Group ($12,363), and Per Scholas ($25,959).[112]

Estimates in this CBA are subject to three sources of uncertainty: sample variability, measurement error in program-level observations of Year Up's costs and inputs whose values could not be measured and had to be assumed.[113] Although the analysis is based on the best information available, there is doubtless some error in the input measures. A key question is: could such errors matter to an extent that affects our conclusion that Year Up produces a large

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[112] Study estimates are adjusted to 2014 dollars for comparability with Year Up results.

[113] See Fein et al. (2021) for a fuller description of these sources of uncertainty and methods used to explore their implications for the results.

net benefit for society as a whole? Or are the findings robust to this uncertainty? Supplemental Exhibit 8, reports findings from simulation analyses addressing these questions.

Sensitivity analyses shows that the study's main conclusion is quite robust to uncertainty. Monte Carlo analyses (updating analyses detailed in Fein et al. 2021) show that a 90 percent confidence interval around our estimated $33,818 overall net benefit to society ranges from $23,967 to $43,660. It is thus highly likely that Year Up's net benefit is truly positive.

Although the foregoing confidence interval assumes a 50 percent return to employers on their payments for interns, the results also are robust to a wide range of assumed returns. At the low-end, Year Up's net benefit to society would be $25,825 in the unlikely situation where employers received zero financial benefit. At the high end, the net benefit increases to $44,361 with a total return to employers worth 1.15 times their investment (i.e., a 15 percent additional return beyond what they paid Year Up).

CBAs often project costs and benefits over participants' lifetimes to help policy makers assess a program's full value. In future work, we hope to provide such projections.[114] At this point, it seems likely that Year Up's lifetime net benefits will be large. For example, assuming that earnings impacts remain at current levels over the first ten follow-up years and then decline linearly to zero over the next ten years, the net benefit will grow to $111,411, representing a $4.82 return per dollar spent on the program.

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[114] Plans for such analysis are contingent on project funding.

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6.   Conclusions

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This chapter reviews and assesses this report's principal findings. Section 6.1 summarizes the key findings. Section 6.2 discusses factors that may underlie the results. In light of the size, longevity, and breadth of Year Up's positive impacts, Section 6.3 considers the potential for scaling the program for its current target population, broadening populations served, and incorporating key features in other programs. Section 6.4 identifies important questions for future research.

6.1   Summary

Key questions for this report included a series of questions about whether Year Up's overall impacts and net benefits to society would extend beyond the five-year follow-up period covered in our last report (Fein et al. 2021), whether subgroup differences would persist, and how the COVID-19 pandemic-induced economic downturn might influence impacts.

Overall impacts and net benefits to society. The new analyses reveal that impacts persisted and showed no signs of diminishing over the seven-year period covered in this report. The impact on average quarterly earnings in Quarters 23-24 (the confirmatory outcome), at $1,895 (a 28 percent effect), was virtually identical to the $1,857 impact in Quarters 12-13 (confirmatory in Fein et al. 2021).

Year Up's earnings impacts continued to compare favorably to impacts from RCTs of other workforce training programs. Compared to Year Up's $8,629 impact on annual earnings in Year 7, the largest impacts for the next-closest programs—Per Scholas and Project QUEST—were $4,000-$6,000 (Maguire et al. 2010, Kanengiser and Schaberg 2022, Roder and Elliot 2019).[115]

Another question was whether increased earnings would affect outcomes in other life domains. The longer-term analyses show favorable impacts on other aspects of financial status—notably, increases in household and personal income, housing security, and the ability to handle a $400 emergency and decreases in debt and receipt of public assistance and UI benefits. With extended financial benefits and no new costs, Year Up's seven-year net benefit to society rose to $2.46 per dollar spent on the program—up from a $1.66 return at five years.

Non-financial outcomes showed few impacts. Although Year Up initially boosted receipt of short-term credentials and industry certifications, these impacts did not lead to increased receipt of more substantial credentials in the longer term. There was little sign of effects on health, other life challenges, psycho-social outcomes, or family formation.

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[115]   Small sample sizes for the Per Scholas and Project QUEST studies provide weak power to detect differences impacts across programs. Thus, although substantial, the differences between impacts for these programs and Year Up are not statistically significant.

Continuing subgroup disparities. The first two PACE reports on Year Up found marked subgroup differences in earnings impacts at earlier follow-up junctures. The present report shows substantial persisting differences: in Quarters 23-24, as at earlier intervals, impacts were larger for participants who identified as White/another race and those with stronger educational backgrounds (better high school grades, some college) at baseline than for young adults who identified as Black or Hispanic, and those with weaker educational backgrounds. And, for the first time, the results show larger impacts for young adults who reported low or moderate depressive symptoms at baseline than for those reporting high levels of depressive symptoms.

Differences by age and educational attainment, in addition to depression, appeared to have widened over time.[116] Compared to Quarters 6-7 (confirmatory in Fein and Hamadyk 2018), earnings impacts diminished for the youngest age group (under 20) but rose for the oldest (22-24) group.[117] Impacts declined for young adults with only a high school credential while they increased for those with a year or more of college attendance.

Most of these subgroup differences persisted undiminished when we controlled for subgroup differences in impacts for the full set of characteristics. This finding suggests that factors particular to each characteristic, rather than some common factor, underlie the observed subgroup differences. Although it is possible that the analysis simply did not control for the common factor responsible, plausible unique influences are not difficult to imagine. For example, differences in impacts by high school grades might reflect the effects of differences in learning ability, differences by initial level of depressive symptoms might arise from varying capacities to cope with life challenges, and differences by race-ethnicity might reflect inequities in access to opportunities in the workplace.

Modest protection from the COVID-19 pandemic-induced economic downturn. Treatment and control group members both experienced sharp declines in average earnings and employment rates and increases in average UI benefit amounts and receipt following the pandemic's March 2020 onset. But because the changes were somewhat smaller for treatment than control group members, positive earnings impacts grew larger while negative impacts on average UI benefits emerged for the first time.

There was no increase in impacts on employment, as might be expected if Year Up had moved participants into more downturn-resistant jobs. One possible explanation arises from the fact that wage records reported to the National Directory of New Hires generally do not cover earnings from gig jobs and other work done as independent contractors. If treatment group members' employment in such jobs tended to be in more resilient IT occupations while control group members' gig jobs were concentrated in service occupations, NDNH-based employment impacts would tend to understate the influence of the pandemic. Tending to support this

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[116] The purpose of the subgroup change analyses was to explore possible divergence rather than test pre-specified hypotheses about changes in impacts. As detailed in Chapter 2, findings varied somewhat depending on the specific subgroups compared for a given characteristic.

[117] Age differences in *changes in impacts* were statistically significant despite the fact that age *differences in impacts* were not statistically significant at either time point.

hypothesis, UI records show sharp increases in impacts on both benefit amounts *and* receipt. After the March 2020 CARES Act extended unemployment benefits to gig workers, states began reporting UI payments (but still not earnings) to the NDNH. Another possibility is that total quarterly earnings capture influences on the amount of work better than quarterly employment, which counts even short spells of part-time work during the quarter.

Subgroup analyses hint that pandemic influences varied by race-ethnicity and educational background. The shifts in earnings and UI benefit impacts summarized above were somewhat larger for young adults who identified as White/another race than for those identifying as Black or Hispanic. And the shifts were larger for young adults with stronger educational backgrounds (e.g., better high school grades, 1+ year of college) than for those with weaker educational backgrounds.

6.2   Possible Explanations

The findings support the thesis that a strong boost into entry-level positions in growing occupations can create lasting financial advantages. This section identifies program features that may have contributed to Year Up's success and discusses possible explanations for several other key findings.

Explaining Year Up's large overall earnings impacts. Designed to measure Year Up's overall impacts, this evaluation did not measure the contributions of individual program components. The implementation study found that all of Year Up's major components were well designed and implemented. Each had a clear logic in its own right and in relation to other components:

- *Careful applicant screening* identifies young adults who will benefit from services and thereby help to bolster employers' confidence in Year Up and its graduates.

- The imperative to develop and maintain *strong relationships with employers* creates strong incentives to focus training on marketable skills.

- *Training* aims to equip students with technical knowledge they need to function credibly in the workplace; as well as skills needed to thrive in corporate social settings.

- *Strong supports and high expectations* help ensure that participants receive the full dose of training and advance to internships.

- *Internships* offer opportunities to further transform classroom knowledge into real capabilities and get to know prospective employers.

- *Employer payments to Year Up* for interns provide critical program revenue and increase incentives for employers to help interns succeed.

As described in Fein and Hamadyk (2018), strong organizational practices and shared values helped to fuse these elements into a cohesive whole. When asked to identify the most important program ingredients, a number of staff, participants, and employers interviewed said that synergies across multiple components were critical for success.

Other evaluations also have tended to find relatively intensive, comprehensive, and full-time programs effective. The two programs producing earnings impacts closest to Year Up – Per Scholas and Project QUEST – also emphasize careful applicant screening, train for in-demand occupations, provide strong supports and employment services, and require full-time participation.[118] The most effective college completion programs – including Accelerated Study in Associate Programs (ASAP) and Valley Initiative for Development and Advancement (VIDA), as well as Project QUEST – also require full-time participation and provide relatively intensive and sustained supports.[119]

Year Up provides a wider range of services than these programs, and it is the only one offering internships with prospective employers. These differences may account for Year Up's relatively large impacts on earnings.

At this stage, however, the evidence favoring comprehensiveness is largely anecdotal. Rigorous studies of the influence of individual components would be valuable.

Earnings impacts persisted but did not grow. Although long lasting, Year Up's impacts did not grow much after the second follow-up year. The program's theory of change posited that once financial circumstances were secure, young adults would be in a good position to return to school, earn credentials, and advance to next steps on career ladders. The findings showed no positive impacts on college enrollment or credentials beyond the short-term ones generated by co-enrollment at Year Up partner colleges during the initial program year.

Given strong evidence on the value of a college degree, one potentially fruitful response might involve post-program follow-up to support college completion. Ongoing encouragement and support may be needed to persuade young adults to add part-time school on top of a full-time work schedule or cut back on work and attend school full time. Working with employers to strengthen opportunities to acquire valuable on-the-job experience and training and advance in rewarding career tracks also could prove fruitful.

An important qualification to the stability of earnings impacts for the overall sample is that, within the sample, impacts appeared to increase for some young adults while they remained constant or decreased for others. The divergence favored young adults with more advantages at the outset (e.g., prior college experience, low-medium depressive symptoms) and who were somewhat older at intake to the program, compared to those with more challenges and younger sample members.

Few radiating effects in other domains. Another question is why improved financial situations did not have more effects in other life domains. Perhaps such changes take longer than six years to develop. Or perhaps there were radiating effects on outcomes the study did not

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[118] See Schaberg and Greenberg (2020) on Per Scholas and Roder and Elliot (2019) on Project QUEST.

[119] See Gupta et al. (2017), Scrivener et al. (2015), and Miller et al (2020) for findings on ASAP and Rolston et al. (2021) and Rolston and Walton (2022) for findings on VIDA (another PACE site). VIDA embodies a similar model as Project QUEST but with some important differences in design and implementation (see Rolston and Walton 2022).

measure—plausible candidates include broader measures of happiness/life satisfaction, mental health, and life skills.

Alternatively, although Year Up's earnings impacts were substantial, perhaps even larger effects are needed to produce detectable changes in health and other distal outcomes. Wider life effects may require boosting average incomes to higher levels or, at the other end, reducing severe financial distress to lower levels.

Protection during the pandemic. Treatment group members' greater resilience during the pandemic may owe to Year Up's success in moving participants into jobs which could be done from home, in fields like IT and financial services. Control group members were more likely to work in retail, service, and other jobs that could not be done virtually.

As noted in the last section, NDNH-based analyses of pandemic influences on employment probably do not capture the downturn's full toll on gig/independent contractor jobs—employment likely to be more prevalent in the control group. That could help to explain why the pandemic's effects were somewhat more pronounced for impacts on UI benefits (for which gig workers became eligible in March 2020) than for impacts on earnings.

6.3   Scaling Year Up's Impacts

Year Up's large, sustained earnings impacts and substantial net benefits to society raise important questions about whether and how the program might be scaled up. This section assesses the prospects for expanding the model tested for PACE to reach a larger fraction of its current target population, for adapting the program to serve a broader population, and for incorporating Year Up strategies in other workforce training programs.[120]

Scaling the program for its current target population. Large positive earnings impacts for nearly all subgroups and local Year Up offices suggest that the program is likely to be effective on a larger scale if replicated with fidelity for its current target population. The total size of this population is difficult to gauge but may be in the neighborhood of 600 thousand young adults.[121]

Scaling with fidelity would entail two major challenges. The first is scaling Year Up's capacity to engage employers and deliver high-quality services. The second is financing the roughly half of

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[120] Upscaling proposals should be designed to minimize the possibility that hiring from programs like Year Up will displace some other low-income workers from the same jobs. In our last report (Fein et al. 2021) we noted two features of Year Up's approach that would go a long way to minimizing displacement if incorporated in upscaled programs. First, Year Up targets fields that normally are not accessible to low-income adults. Second, like other sectoral programs, Year Up aims to address labor shortages in fast-growing occupations that otherwise might go unfilled.

[121] Census Bureau estimates show 6.1 million 18-24-year-olds living below 150 percent of the poverty line in 2019. Conservatively assuming that half had high school credentials and that one in five of the latter would meet Year Up's screening criteria, a rough estimate might be 600 thousand young adults eligible under the current program targeting approach. See https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.html#par_textimage_24.

costs not covered by revenue from employers and which Year Up has to date raised primarily from private philanthropy.

Scaling Year Up's capacity would require expanding the organization's staffing and management systems with a high degree of fidelity to the standards achieved during PACE (Fein and Hamadyk 2018). This capacity must be effectively applied to assure high performance across the program's wide array of Learning and Development phase services (e.g., training in soft/professional and technical skills, behavior contracts, coaching, learning communities). Efforts to scale also must replicate Year Up's ability to arrange thousands of internships with companies and generate revenue in doing so. Fidelity to Year Up's high-quality performance monitoring and feedback systems and intentional approach to values and culture also may be critical.

Securing financing at levels commensurate with the national need also will be challenging. Assuming that employers continue to pick up half of the average $28,290 total cost per participant, an additional $8.5 billion would be needed to serve the roughly 600 thousand young adults in Year Up's current target population. If scaled with commensurate effectiveness, society would see a seven-year return to society of at least $21 billion, based on our cost-benefit study.[122]

Public financing likely would be needed to muster funding at even a fraction of this scale. Year Up to date has avoided government grants to minimize design constraints and administrative requirements that might limit its ability to maintain high fidelity to its model. In principle, new funding streams might be designed to ensure that programs include key Year Up components and meet the program's rigorous performance standards while minimizing further prescription and requirements. Year Up's performance measurement system is highly attuned to its target outputs and would be a valuable tool in monitoring scaled programs.

A number of recent proposals would expand public financing for evidence-based programs like Year Up.[123] But proposed funding has been modest, and prospects for more ambitious efforts are uncertain. Newer Year Up models are testing a different approach: improving scalability by lowering program costs and leveraging capacity of other institutional systems.

For example, Year Up's Professional Training Corps (PTC) program is a college-based version of the model that utilizes college facilities and instructors and reduces the intensity of some components (Fein et al. 2020). Prior to the pandemic, PTC rapidly expanded and, by early 2020, was serving more young adults than the stand-alone program. The pandemic forced a

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[122] This estimate multiplies $8.5 billion times the cost-benefit study's estimated return of $2.46 on the dollar. With earnings impacts extending to the end of this period, lifetime net benefits could be substantially larger. As explained in Chapter 5, the estimates assume a return to employers of only fifty cents on the dollar, whereas profit maximization theory suggests the return could be closer to a dollar. And the calculations do not monetize the benefits of potential longer-term improvements in substance abuse, mental health, criminal justice system involvement, and child well-being.

[123] For one example, see https://sherrill.house.gov/media/press-releases/reps-sherrill-mckinley-introduce-expanding-pathways-employment-act.

rapid transition to virtual instruction and coaching. Seeing these formats as more conducive to scaling, Year Up plans to continue to operate in hybrid format as the pandemic recedes. Meanwhile, it also is piloting versions involving shorter training and internship phases, so-called "last mile" models connecting trainees from other programs to employment more quickly, and training in a wider range of occupations.

Findings from PACE strongly establish the effectiveness, replicability, and financial benefits to society of Year Up's original model. The organization's newer initiatives provide valuable opportunities to see whether lower-cost versions can match these results.

Broadening benefits. If careful targeting of young adults is a plausible ingredient in Year Up's effectiveness, it also imposes significant limits on the population that will benefit. In addition to assessing prospects for expanding beyond the types of young adults Year Up currently serves, steps to broaden impacts within the current target population might be explored.

Subgroup analyses in this report suggest that some expansion might be effective with relatively little change in the Year Up model. Large impacts for all subgroups, including more disadvantaged groups, imply that the current target population does not extend to the limits of categories that could benefit. Similarly, large (and growing) impacts for older participants in Year Up's targeted 18-24 age range suggest that expansion to older young adults (say 25 to 30) might be productive.[124]

With further modification, program benefits might be extended more broadly. For example, an additional period of up-front services focused on skills remediation, high school completion, and helping to manage personal challenges might provide an effective bridge to the program for young adults with weaker skills and more life challenges. By extending training to a wider range of occupations, Year Up might reach young adults interested in fields other than IT and financial services.[125] Increased use of remote learning, telework, and hybrid formats might allow Year Up to reach young adults living beyond the urban areas it has served to date.

Other modifications might help generate larger benefits for subgroups with smaller impacts within the current target population. Enhanced academic coaching is one promising strategy for young adults with weaker educational backgrounds.[126] Strengthened efforts to secure college credit through partnerships with local colleges and the American Council on Education might help to address smaller impacts for young adults who had the least prior college experience at the outset. Doubling down on early screening and follow-up mental health services for young

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[124] Newer Year Up models in several offices have expanded the age range for recruitment to 18-30, roughly doubling the size of the target population.

[125] Year Up already has added training in a number of different occupations, generally involving more specialties in the information technology and business and finance arenas. Examples include trainings in cyber security, software development, and sales and customer support.

[126] An RCT involving Year Up's next-generation Professional Training Corps found that a modest increase in attention to academic issues by Year Up coaches generated a 10-point increase in the fraction of participants reaching the internship phase. See Fein et al. (2020) and Maynard et al. (2020).

adults reporting relatively high levels of depressive symptoms might help to head off the long-term decline in impacts for this group. Further steps to help participants and corporate partners address the special challenges facing members of minority groups in the workplace might help to address smaller impacts for these groups.

Finally, although large and long lasting, Year Up's earnings impacts did not grow much after the second follow-up year. Perhaps strengthened career planning and coaching could set participants on a course to eventually return to college and complete a degree.[127]

Although the above enhancements may seem attractive, it is important to be realistic about what a single organization can do. The effort required to mobilize and deliver a high-quality one-year training program is already considerable, and adding goals (e.g., college completion) brings some risk of loss of focus. Ultimately, broader changes in workforce systems are likely to be needed to ensure that graduates from individual programs are able to transition smoothly to the next steps on their career pathways.[128]

Strengthening existing workforce training programs. One useful step in preparing the way for wider systems changes would be to test how other workforce programs might be strengthened by incorporating Year Up strategies. The extent and nature of gaps between Year Up and other programs vary greatly.

Like Year Up, sectoral training programs like Per Scholas and Project QUEST already target in-demand occupations, carefully screen applicants, provide technical and soft skills training, offer strong supports, and maintain close connections with employers. RCTs have shown that these programs can increase earnings, although their impacts have not been as large as Year Up's.[129] The most noticeable difference is that few such programs offer internships on par with Year Up's.

Another promising class of programs is focused on completion of sub-baccalaureate-level college credentials. The most successful of these programs screen for skills and other barriers, supplement financial assistance and require full-time participation, and provide coaching and peer supports. Several have increased credential receipt substantially, but only one has raised earnings.[130]

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[127] See Fein et al. (2020) for discussion and recommendations along these lines for Year Up's Professional Training Corps program.

[128] Hoffman (2015) offers similar counsel, warning that high-performing workforce programs in the US already face enormous challenges as "islands of excellence" that must mobilize and deliver a wide range of specialized services in a fragmented workforce system.

[129] See Maguire et al. (2010) and Kanengiser and Schaberg (2022) on Per Scholas and Roder and Elliot (2019) on Project QUEST.

[130] Of three random assignment studies finding large credential impacts, Project QUEST is the only one with positive, long-lasting earnings impacts (Roder and Elliot 2019). Caution is needed, as this was a small one-site sample and a separate test at another site did not find earnings impacts (Rolston and Walton 2022). Studies of another promising model – the Accelerated Study in Associates Programs

Less effective college-focused programs serve adults at more mixed skill levels and include part-time students. They often increase receipt of short-term certificates (e.g., certified nursing assistant), but subsequent progression to more substantial credentials and higher earnings is minimal.[131] Perhaps increased financial and social supports (e.g., Year Up-level stipends, coaching, and learning communities) and coaching might help to increase these programs' impacts on persistence and completion of longer-term credentials.

Both categories of college completion programs put far less emphasis on employment than Year Up.[132] Year Up staff work closely with interns and worksite supervisors to promote positive internship outcomes. Towards the end of internships, participants spend weeks on resumes, employment goals, and job search skills. For up to four months after graduation, Year Up staff provide intensive job search and placement services, and local offices are held to rigorous job placement standards. It would be useful to test whether offering more robust employment services and work experience would increase college completion programs' effectiveness in raising earnings.

RCTs also have found national employment and training programs to be only modestly effective in raising earnings at best. Some of these programs approach Year Up in intensity and employer connections but serve more disadvantaged young adults.[133] The main need here may be to extend supports over a longer time period. For example, Bloom and Miller (2018) recommend steps to connect graduates of these programs to more advanced follow-on programs like Year Up.

Other national programs, such as the Workforce Investment Act (WIA) Adult and Dislocated Workers Program and the Health Profession Opportunity Grants (HPOG) Program, are less intensive than Year Up. Compared to Year Up's target population, these programs serve a wider mix of low-income adults—including more participants who have lower skills, who are parenting, and who might be facing more life challenges. Such factors can make it difficult to complete a one-year, full-time program like Year Up. These other programs also tend to provide comparatively modest supports and offer little, if any, opportunities for workplace-based learning. As a result, although they often have increased receipt of short-term credentials, their impacts on participants' earnings have been modest at best.[134]

[footnote continuation] (ASAP) – have not to date reported earnings impacts (Gupta et al. 2017, Scrivener et al. 2015, Miller et al 2020).

[131] See Juras et al. (2022).

[132] See Juras and Buron (2021).

[133] Notable examples include studies of Job Corps (Schochet et al. 2008, Schochet 2018), National Guard ChalleNGe (Millenky et al. 2011), and YouthBuild (Miller et al. 2018).

[134] McConnell et al. (2021) report impacts on total earnings for WIA Adult and Dislocated Workers Program intensive services of $3,000 for NDNH wage records-based estimates over 12 follow-up quarters and $7,000 for survey-based estimates covering 30 follow-up months. Peck et al. (2022) find no impacts for the HPOG Program.

It would be informative to test the effects of adding major Year Up strategies to such programs. For example, an experiment might randomize applicants into four groups: one receiving Year Up's relatively intensive supports (e.g., stipends, professional skills training, coaching, learning communities), another receiving Year Up-style internships, a third receiving both sets of services, and a fourth receiving neither (i.e., usual services).

The foregoing examples suggest a few directions for applying promising Year Up strategies to individual workforce training programs. But much broader changes are needed to move the U.S. workforce system to a level where large diverse populations will be able to readily access high-quality training, move to successively higher levels of training, and easily connect with employers eager to develop new talent pipelines.

Year Up also is pursuing several initiatives aimed at catalyzing wider workforce system change. These efforts involve partnerships with other training providers and large employers and business organizations to heighten awareness and begin to build capacity and connections on a larger scale. Public policy also can play a critical role in funding and guiding such efforts. Encouraging findings on Year Up and related programs have stimulated a number of promising proposals for scaling approaches that work.[135]

6.4   Open Questions

This chapter has identified many questions raised by the latest Year Up findings. Further analysis of the PACE Year Up sample will be useful in addressing some questions, while others will require new studies.

Extended follow-up of the PACE sample could help to determine how much longer Year Up's earnings impacts continue, whether subgroup impacts continue to diverge, and whether more effects in distal life domains begin to emerge. With longer-term data, the study will be in a stronger position to project net benefits over participants' lifetimes. Longer-term analyses also can provide a fuller account of the pandemic's effects on outcomes and impacts. Additional follow-up surveys could provide the basis for fine-grained analysis of advancement in career pathways and potentially related aspects of transitions to adulthood (e.g., family formation, home ownership).

New experiments will be needed to measure rigorously the contributions of Year Up's major components to its overall impacts and test adaptations for wider populations and programs outlined in Section 6.3. Further testing might reveal that Year Up's impacts owe mainly to its success in connecting talented young adults with employers through careful screening and internships. Alternatively, the program's strong professional skills components, technical training, and related supports (e.g., learning communities, coaching, and internships) might

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[135] Examples of proposals to expand funding for effective workforce programs include: the Expanding Pathways to Employment Act (https://sherrill.house.gov/media/press-releases/reps-sherrill-mckinley-introduce-expanding-pathways-employment-act), the Build Back Better Act (https://www.congress.gov/bill/117th-congress/house-bill/5376), and the Laura and John Arnold Foundation's Funding Match for Evidence proposal (https://evidencebasedprograms.org/document/funding-match-for-evidence-demonstration/).

prove critical. Improved measures of impacts on skills could position future studies to better discern the role of increased human capital.

Efforts to expand Year Up to new populations, providers, and contexts raise many questions. A systematic, well-planned research agenda thus should accompany efforts to scale the program.

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Supplemental Exhibits

Supplemental Exhibit 1: Impact on Average Quarterly Earnings by Follow-up Quarter

Average Quarterly Earnings ($) in Follow-up Quarter	Treatment Group	Control Group	Impact (Difference)		Standard Error	Relative Impact	p-Value
Q(-2)	$1,617	$1,628	−$11		$59	−0.7	0.851
Q(-1)	$1,718	$1,718	$0		$0	0.0	
Q0	$1,480	$1,795	−$315	***	$59	−17.6	<.001
Q1	$919	$2,367	−$1,448	***	$79	−61.2	<.001
Q2	$763	$2,596	−$1,832	***	$91	−70.6	<.001
Q3	$802	$2,984	−$2,183	***	$103	−73.1	<.001
Q4	$2,685	$3,153	−$468	***	$122	−14.8	<.001
Q5	$5,268	$3,456	+$1,812	***	$147	52.4	<.001
Q6	$5,584	$3,503	+$2,081	***	$156	59.4	<.001
Q7	$5,663	$3,865	+$1,798	***	$164	46.5	<.001
Q8	$5,630	$3,899	+$1,731	***	$169	44.4	<.001
Q9	$6,085	$4,295	+$1,790	***	$180	41.7	<.001
Q10	$6,231	$4,504	+$1,727	***	$184	38.3	<.001
Q11	$6,385	$4,621	+$1,763	***	$188	38.2	<.001
Q12	$6,658	$4,870	+$1,788	***	$202	36.7	<.001
Q13	$6,879	$4,966	+$1,914	***	$201	38.5	<.001
Q14	$7,064	$5,102	+$1,962	***	$208	38.4	<.001
Q15	$7,256	$5,339	+$1,917	***	$212	35.9	<.001
Q16	$7,355	$5,538	+$1,818	***	$223	32.8	<.001
Q17	$7,722	$5,731	+$1,991	***	$220	34.7	<.001
Q18	$7,822	$5,813	+$2,009	***	$232	34.6	<.001
Q19	$8,132	$6,161	+$1,971	***	$236	32.0	<.001
Q20	$8,250	$6,113	+$2,137	***	$250	35.0	<.001
Q21	$8,694	$6,665	+$2,029	***	$263	30.4	<.001
Q22	$8,613	$6,632	+$1,981	***	$261	29.9	<.001
Q23	$8,882	$6,952	+$1,930	***	$277	27.8	<.001
Q24	$8,711	$6,851	+$1,861	***	$283	27.2	<.001
Q25	$8,726	$6,723	+$2,003	***	$310	29.8	<.001
Q26	$8,929	$6,814	+$2,116	***	$312	31.0	<.001
Q27	$9,222	$6,950	+$2,272	***	$334	32.7	<.001
Sample size	1,637	858					

Source: National Directory of New Hires.
Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]).
Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Supplemental Exhibit 2: Impact on Employment by Follow-up Quarter

Employed (%) in Follow-up Quarter	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	*p*-Value
Q(-2)	61.3	58.5	+2.8	1.8	4.7	0.118
Q(-1)	63.1	59.3	+3.8 **	1.6	6.4	0.019
Q0	58.3	65.7	−7.4 ***	1.8	−11.3	<.001
Q1	43.8	71.9	−28.1 ***	1.8	−39.1	<.001
Q2	37.2	73.9	−36.7 ***	1.8	−49.7	<.001
Q3	34.8	75.1	−40.2 ***	1.8	−53.6	<.001
Q4	68.6	75.9	−7.3 ***	1.8	−9.6	<.001
Q5	83.5	80.1	+3.4 **	1.6	4.3	0.033
Q6	82.8	78.0	+4.8 ***	1.7	6.2	0.004
Q7	81.4	76.3	+5.1 ***	1.7	6.7	0.003
Q8	80.3	76.5	+3.8 **	1.7	5.0	0.027
Q9	79.8	77.4	+2.4	1.7	3.2	0.149
Q10	80.9	78.8	+2.1	1.7	2.7	0.202
Q11	81.7	81.8	−0.1	1.6	−0.1	0.961
Q12	81.7	78.0	+3.7 **	1.7	4.8	0.027
Q13	81.7	79.6	+2.1	1.7	2.6	0.209
Q14	82.2	79.0	+3.1 *	1.7	4.0	0.060
Q15	82.8	81.4	+1.5	1.6	1.8	0.367
Q16	83.4	80.4	+3.0 *	1.6	3.7	0.066
Q17	84.1	81.9	+2.2	1.6	2.7	0.170
Q18	82.1	81.4	+0.8	1.6	1.0	0.629
Q19	82.4	82.1	+0.4	1.6	0.4	0.823
Q20	81.4	79.6	+1.8	1.7	2.2	0.287
Q21	82.9	79.4	+3.5 **	1.7	4.4	0.035
Q22	82.5	80.3	+2.2	1.6	2.8	0.178
Q23	81.6	81.6	0.0	1.6	0.0	0.993
Q24	78.7	78.7	0.0	1.7	0.0	0.991
Q25	75.7	74.0	+1.7	1.8	2.3	0.345
Q26	74.3	74.0	+0.2	1.8	0.3	0.895
Q27	73.8	72.8	+1.0	1.9	1.4	0.596
Sample size	1,637	858				

Source: National Directory of New Hires.
Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]).
Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Supplemental Exhibit 3: Subgroup Impacts on Average Quarterly Earnings in Quarters 23-24, Controlling for Differences in Impacts on Varying Sets of Characteristics

Subgroup	Simple (Unconditional) Effects	Impacts after Controlling for Impacts on other Specified Characteristics				
		Model 1	Model 2	Model 3	Model 4	Model 5
Age	**0.299**					**0.639**
Under 20	$1,211 **					$1,477 ***
20-22	$2,106 ***					$2,109 ***
23-24	$2,190 ***					$1,913 ***
Gender	**0.468**					**.483**
Male	$1,743 ***					$1,736 ***
Female	$2,130 ***					$2,125 ***
Race-Ethnicity	**0.066**		**0.072**	**0.068**	**0.359**	**0.407**
Black, non-Hispanic	$1,414 ***		$1,401 ***	$1,369 ***	$1,624 ***	$1,592 ***
Hispanic, any Race	$2,017 ***		$2,093 ***	$2,057 ***	$1,935 ***	$1,966 ***
White/Other non-Hispanic	$3,514 ***		$3,417 ***	$3,409 ***	$3,049 ***	$2,920 ***
Usual High School Grades	**0.031**	**0.083**	**0.086**	**0.132**		**0.147**
A's and B's	$2,357 ***	$2,291 ***	$2,282 ***	$2,206 ***		$2,222 ***
C's and below	$1,192 ***	$1,353 ***	$1,356 ***	$1,392 ***		$1,427 ***
Educational Attainment	**0.011**	**0.021**	**0.023**	**0.018**		**0.048**
High School	$1,144 ***	$1,183 ***	$1,184 ***	$1,128 ***		$1,222 ***
<1 Year College	$2,484 ***	$2,455 ***	$2,511 ***	$2,505 ***		$2,539 ***
1+ Year College	$2,980 ***	$2,848 ***	$2,783 ***	$2,784 ***		$2,662 ***
Training Commitment	**0.939**					**0.812**
Low (bottom third)	$1,898 ***					$2,151 ***
Med (next third)	$1,784 ***					$1,733 ***
High (top third)	$2,013 ***					$1,795 ***
Depressive Symptoms	**0.056**			**0.056**		**0.086**
Low (bottom third)	$2,547 ***			$2,577 ***		$2,571 ***
Med (next third)	$2,030 ***			$1,940 ***		$2,039 ***
High (top third)	$1,055 **			$1,085 **		$1,101 **
Life Challenges	**0.228**					**0.663**
Low (bottom third)	$2,113 ***					$1,797 ***
Med (next third)	$2,308 ***					$2,260 ***
High (top third)	$1,253 ***					$1,680 ***
Expected Work Hours	**0.199**					**0.605**
<10/week	$2,338 ***					$2,202 ***
10-29/week	$1,860 ***					$1,777 ***
30+/week	$1,030 *					$1,500 **

Subgroup	Simple (Unconditional) Effects	Impacts after Controlling for Impacts on other Specified Characteristics				
		Model 1	Model 2	Model 3	Model 4	Model 5
Office	0.002				0.005	0.012
A	$1,252 *				$1,435 *	$1,499 *
B	$1,347 **				$1,367 **	$1,570 **
C	$985				$816	$1,028
D	$1,635 **				$1,822 **	$1,833 **
E	$1,174 *				$1,339 *	$1,066
F	$1,636 **				$1,673 **	$1,430 *
G	$2,017 **				$1,666 *	$1,603 *
H	$6,332 ***				$6,050 ***	$5,872 ***

Source: National Directory of New Hires and PACE baseline survey.

Note: See Judkins et al. (2022), Appendix A, for definitions of characteristics. *p*-values shown as white text report the probability that differences in impacts across subgroups for each characteristic arise by chance in each model. Asterisks indicate whether each estimated impact is statistically significant (i.e., different from zero) at the: * 10 percent level, ** 5 percent level; *** 1 percent level.

Supplemental Exhibit 4: Impact on College Enrollment by Follow-up Quarter

Any College Enrollment (%) during Follow-up Quarter	Treatment Group	Control Group	Impact (Difference)	Standard Error	Relative Impact	p-Value
Q(-2)	22.4	19.9	+2.6	1.6	12.9	0.109
Q(-1)	21.6	18.8	+2.8 *	1.6	14.8	0.074
Q0	48.0	16.1	+31.9 ***	1.7	198.3	<.001
Q1	59.8	18.1	+41.7 ***	1.7	229.8	<.001
Q2	55.7	25.4	+30.3 ***	1.9	119.5	<.001
Q3	47.2	25.7	+21.5 ***	1.9	83.7	<.001
Q4	17.6	25.8	−8.2 ***	1.7	−31.7	<.001
Q5	15.5	25.6	−10.1 ***	1.7	−39.3	<.001
Q6	17.6	24.8	−7.2 ***	1.7	−28.9	<.001
Q7	18.0	23.7	−5.7 ***	1.7	−24.0	<.001
Q8	19.4	19.5	−0.1	1.6	−0.7	0.935
Q9	19.9	19.9	+0.0	1.6	0.0	0.996
Q10	18.5	19.5	−1.0	1.6	−5.2	0.531
Q11	17.7	18.6	−0.9	1.6	−4.6	0.590
Q12	16.7	18.3	−1.5	1.6	−8.4	0.328
Q13	16.5	17.9	−1.4	1.6	−7.8	0.371
Q14	16.0	15.4	+0.6	1.5	4.0	0.682
Q15	15.8	15.2	+0.6	1.5	4.3	0.664
Q16	15.5	15.2	+0.3	1.5	2.1	0.830
Q17	15.0	14.5	+0.6	1.5	3.9	0.702
Q18	13.7	14.4	−0.7	1.4	−4.6	0.646
Q19	13.4	14.2	−0.9	1.4	−6.0	0.552
Q20	13.9	13.2	+0.7	1.4	5.4	0.614
Q21	14.4	13.0	+1.5	1.4	11.2	0.307
Q22	12.7	11.8	+0.9	1.4	7.7	0.501
Q23	12.3	12.3	0.0	1.4	−0.2	0.987
Q24	12.5	12.1	+0.5	1.4	4.0	0.725
Q25	12.5	11.5	+1.0	1.3	8.8	0.451
Q26	11.3	11.1	+0.1	1.3	1.3	0.914
Q27	10.7	10.2	+0.5	1.3	4.8	0.695
Sample size	1,668	871				

Source: National Student Clearinghouse.
Note: All hypothesis tests and associated *p*-values in this table are based on two-sided tests. Statistics in the Relative Impact column represent the impact as a percentage of the control group mean (i.e., 100 * [impact / control group mean]). Asterisks indicate statistical significance at the: * 10 percent level, ** 5 percent level, *** 1 percent level.

Supplemental Exhibit 5: Impacts on Key Outcomes, and Changes from 2019 Average Impacts, by Calendar Quarter

Calendar Quarter	Average Total Earnings ($)				Employment (%)				Average Unemployment Benefits ($)				Unemployment Benefit Receipt (%)			
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value
Impact																
2018Q1	$7,613	$5,528	$2,086	0.000	82.7	80.0	2.7	0.098	$90	$51	$39	0.061	3.1	2.6	0.6	0.411
2018Q2	$7,662	$5,701	$1,962	0.000	82.7	81.8	0.9	0.566	$72	$48	$24	0.188	3.2	2.8	0.4	0.583
2018Q3	$7,908	$5,892	$2,016	0.000	83.8	82.3	1.5	0.350	$64	$64	-$1	0.974	2.7	2.7	0.0	0.958
2018Q4	$8,403	$6,249	$2,154	0.000	83.0	80.9	2.1	0.201	$65	$68	-$3	0.886	2.2	3.1	-1.0	0.175
2019Q1	$8,224	$5,966	$2,259	0.000	79.7	76.5	3.2	0.064	$86	$97	-$11	0.688	3.5	3.3	0.2	0.764
2019Q2	$8,598	$6,780	$1,817	0.000	82.1	79.6	2.5	0.130	$90	$102	-$12	0.697	3.7	3.6	0.1	0.907
2019Q3	$8,781	$6,990	$1,792	0.000	83.1	80.1	3.0	0.066	$114	$71	$44	0.071	3.6	2.9	0.7	0.334
2019Q4	$9,441	$7,501	$1,940	0.000	83.6	82.5	1.1	0.502	$115	$48	$67	0.002	4.1	2.2	1.9	0.007
2020Q1	$9,613	$7,637	$1,976	0.000	80.9	82.4	-1.5	0.364	$104	$82	$22	0.349	5.2	4.4	0.7	0.408
2020Q2	$8,480	$6,056	$2,424	0.000	73.1	72.3	0.9	0.641	$1,312	$1,671	-$359	0.010	20.2	26.6	-6.3	0.000
2020Q3	$8,332	$6,122	$2,210	0.000	71.3	69.5	1.9	0.332	$1,279	$1,564	-$285	0.028	21.8	28.0	-6.2	0.001
2020Q4	$9,113	$6,916	$2,197	0.000	71.1	68.1	3.1	0.107	$673	$738	-$65	0.425	19.7	23.1	-3.3	0.053
2021Q1	$8,820	$6,696	$2,124	0.000	69.7	71.3	-1.6	0.391	$933	$1,046	-$113	0.272	17.2	20.5	-3.3	0.042
2021Q2	$8,951	$6,785	$2,166	0.000	68.9	67.0	1.9	0.326	$852	$1,016	-$164	0.190	14.7	16.9	-2.2	0.146
2019 Average			**$1,952**				**2.5**				**$22**				**0.7**	
Change from 2019 average in:																
2020Q1			$24	0.903			-3.9	0.002			$0	0.991			0.0	0.993
2020Q2			$472	0.036			-1.6	0.346			-$381	0.006			-7.1	0.000
2020Q3			$258	0.274			-0.6	0.739			-$307	0.019			-6.9	0.000
2020Q4			$245	0.361			0.6	0.733			-$87	0.296			-4.1	0.023
2021Q1			$172	0.531			-4.1	0.023			-$135	0.193			-4.1	0.017
2021Q2			$214	0.459			-0.6	0.765			-$186	0.139			-3.0	0.065

Supplemental Exhibit 6: Impacts on Average Earnings by Calendar Quarter for Subgroups

6a. Earnings Impacts by Age

Calendar Quarter	Under 20				20-22				23-24				Difference in Changes Since 2019			
													<20 -- 23-24		20-22 -- 23-24	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$7,001	$5,000	$2,001	0.000	$7,909	$5,710	$2,199	0.000	$7,745	$5,707	$2,038	0.000				
2018Q2	$7,003	$5,510	$1,493	0.001	$7,961	$5,818	$2,143	0.000	$7,766	$5,687	$2,079	0.000				
2018Q3	$7,065	$5,633	$1,432	0.002	$8,229	$5,979	$2,250	0.000	$8,092	$5,983	$2,109	0.000				
2018Q4	$7,637	$5,664	$1,973	0.000	$8,664	$6,383	$2,281	0.000	$8,659	$6,551	$2,108	0.000				
2019Q1	$7,223	$5,307	$1,916	0.000	$8,588	$6,236	$2,352	0.000	$8,477	$6,123	$2,354	0.000				
2019Q2	$8,044	$6,463	$1,581	0.002	$8,831	$7,072	$1,759	0.000	$8,757	$6,610	$2,147	0.000				
2019Q3	$8,069	$6,820	$1,249	0.016	$8,946	$7,075	$1,870	0.000	$9,124	$7,005	$2,118	0.000				
2019Q4	$8,604	$7,068	$1,536	0.006	$9,709	$7,629	$2,080	0.000	$9,737	$7,679	$2,059	0.001				
2020Q1	$8,845	$7,058	$1,788	0.003	$9,896	$8,089	$1,808	0.000	$9,830	$7,450	$2,380	0.000				
2020Q2	$7,651	$5,606	$2,045	0.001	$8,698	$6,368	$2,329	0.000	$8,830	$5,969	$2,862	0.000				
2020Q3	$7,456	$5,791	$1,665	0.007	$8,615	$6,114	$2,502	0.000	$8,474	$6,421	$2,053	0.000				
2020Q4	$8,430	$6,340	$2,089	0.004	$9,105	$6,841	$2,264	0.000	$9,609	$7,529	$2,081	0.001				
2021Q1	$7,987	$6,446	$1,541	0.019	$9,094	$6,732	$2,362	0.000	$9,479	$7,163	$2,316	0.000				
2021Q2	$8,389	$6,581	$1,808	0.007	$8,853	$6,519	$2,334	0.000	$9,379	$7,066	$2,313	0.000				
2019 Average			$1,570				$2,015				$2,170					
Change from 2019 average in:																
2020Q1			$217	0.564			-$207	0.504			$211	0.548	$7	0.990	-$418	0.372
2020Q2			$474	0.250			$314	0.362			$692	0.106	-$218	0.714	-$378	0.492
2020Q3			$94	0.837			$487	0.167			-$117	0.801	$211	0.746	$603	0.300
2020Q4			$519	0.349			$249	0.515			-$89	0.864	$608	0.424	$338	0.601
2021Q1			-$30	0.954			$347	0.397			$147	0.785	-$176	0.813	$200	0.767
2021Q2			$238	0.664			$319	0.455			$144	0.804	$94	0.906	$175	0.807
Sample size	419	219			781	386			437	253						

6b. Earnings Impacts by Usual High School Grades

Calendar Quarter	Mostly A's and B's				Mostly C's and Below				Difference in Changes Since 2019: <=C's -- A's & B's	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value
Impact										
2018Q1	$7,941	$5,549	$2,393	0.000	$7,061	$5,493	$1,567	0.000		
2018Q2	$7,947	$5,743	$2,204	0.000	$7,234	$5,632	$1,602	0.000		
2018Q3	$8,252	$5,865	$2,387	0.000	$7,424	$5,936	$1,488	0.000		
2018Q4	$8,708	$6,207	$2,501	0.000	$7,956	$6,316	$1,640	0.000		
2019Q1	$8,635	$5,963	$2,671	0.000	$7,590	$5,969	$1,620	0.000		
2019Q2	$8,961	$6,623	$2,338	0.000	$8,033	$7,035	$998	0.016		
2019Q3	$9,123	$6,861	$2,262	0.000	$8,298	$7,197	$1,102	0.009		
2019Q4	$9,772	$7,358	$2,414	0.000	$8,972	$7,731	$1,240	0.008		
2020Q1	$10,122	$7,553	$2,569	0.000	$8,912	$7,773	$1,139	0.022		
2020Q2	$9,046	$5,905	$3,141	0.000	$7,638	$6,300	$1,338	0.005		
2020Q3	$8,881	$6,118	$2,763	0.000	$7,504	$6,129	$1,375	0.003		
2020Q4	$9,575	$6,990	$2,586	0.000	$8,370	$6,797	$1,572	0.003		
2021Q1	$9,471	$7,107	$2,364	0.000	$8,006	$6,267	$1,739	0.001		
2021Q2	$9,007	$6,899	$2,108	0.000	$8,490	$6,367	$2,123	0.000		
2019 Average			**$2,421**				**$1,240**			
Change from 2019 average in:										
2020Q1			$147	0.562			-$101	0.757	-$248	0.549
2020Q2			$720	0.014			$98	0.780	-$621	0.174
2020Q3			$342	0.256			$135	0.730	-$206	0.676
2020Q4			$164	0.627			$332	0.459	$168	0.765
2021Q1			-$58	0.873			$498	0.254	$556	0.325
2021Q2			-$314	0.414			$883	0.042	$1,197	0.039
Sample size	963	530			674	328				

6c. Earnings Impacts by Educational Attainment

Calendar Quarter	High School Diploma/Equiv				<1 Year of College				1+ Year of College				Difference in Changes Since 2019			
													HS -- 1+ Year Coll		<1 Year -- 1+ Year Coll	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$6,742	$5,133	$1,609	0.000	$7,861	$5,730	$2,131	0.000	$9,196	$6,209	$2,986	0.000				
2018Q2	$6,910	$5,314	$1,596	0.000	$7,665	$5,961	$1,704	0.001	$9,157	$6,315	$2,842	0.000				
2018Q3	$7,156	$5,443	$1,714	0.000	$7,810	$6,221	$1,588	0.001	$9,450	$6,583	$2,867	0.000				
2018Q4	$7,467	$5,868	$1,599	0.000	$8,647	$6,503	$2,144	0.000	$10,029	$6,856	$3,173	0.000				
2019Q1	$7,285	$5,652	$1,633	0.000	$8,289	$5,682	$2,607	0.000	$10,012	$6,889	$3,123	0.000				
2019Q2	$7,761	$6,580	$1,181	0.000	$8,521	$6,456	$2,065	0.000	$10,268	$7,494	$2,774	0.000				
2019Q3	$7,946	$6,746	$1,200	0.001	$8,795	$6,973	$1,822	0.002	$10,349	$7,531	$2,818	0.000				
2019Q4	$8,345	$7,335	$1,010	0.008	$9,865	$7,194	$2,670	0.000	$11,236	$8,124	$3,112	0.000				
2020Q1	$8,512	$7,202	$1,310	0.001	$10,076	$7,591	$2,485	0.000	$11,524	$8,620	$2,904	0.000				
2020Q2	$7,338	$5,706	$1,631	0.000	$8,953	$6,022	$2,931	0.000	$10,442	$6,844	$3,598	0.000				
2020Q3	$7,285	$5,684	$1,602	0.000	$8,389	$6,190	$2,199	0.001	$10,620	$7,015	$3,605	0.000				
2020Q4	$7,970	$6,692	$1,278	0.004	$8,979	$6,375	$2,604	0.001	$11,583	$7,868	$3,715	0.000				
2021Q1	$7,492	$6,198	$1,294	0.002	$9,091	$7,127	$1,964	0.008	$11,700	$7,770	$3,930	0.000				
2021Q2	$7,862	$6,365	$1,497	0.000	$8,804	$6,846	$1,958	0.016	$10,926	$7,286	$3,640	0.000				
2019 Average			$1,256				$2,291				$2,957					
Change from 2019 average in:																
2020Q1			$54	0.828			$194	0.689			-$53	0.899	$107	0.825	$247	0.699
2020Q2			$375	0.176			$640	0.211			$641	0.201	-$266	0.643	-$1	0.999
2020Q3			$346	0.239			-$92	0.875			$648	0.175	-$303	0.589	-$740	0.326
2020Q4			$22	0.948			$313	0.632			$758	0.154	-$736	0.244	-$445	0.597
2021Q1			$38	0.909			-$327	0.605			$974	0.120	-$936	0.188	-$1,301	0.144
2021Q2			$242	0.495			-$333	0.645			$684	0.252	-$442	0.524	-$1,016	0.278
Sample size	841	462			366	183			430	213						

6d. Earnings Impacts by Race-Ethnicity

Calendar Quarter	Non-Hispanic Black				Hispanic				White/Another Race				Difference in Changes Since 2019			
													Black -- White/Another		Hispanic -- White/Another	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$6,605	$4,804	$1,801	0.000	$8,214	$6,103	$2,110	0.000	$10,047	$6,968	$3,078	0.000				
2018Q2	$6,635	$4,981	$1,654	0.000	$8,513	$6,257	$2,256	0.000	$9,702	$7,169	$2,533	0.001				
2018Q3	$6,911	$5,083	$1,829	0.000	$8,546	$6,662	$1,884	0.000	$10,143	$7,223	$2,921	0.000				
2018Q4	$7,369	$5,547	$1,823	0.000	$9,087	$7,025	$2,062	0.000	$10,672	$7,163	$3,509	0.000				
2019Q1	$6,992	$5,286	$1,707	0.000	$8,991	$6,444	$2,546	0.000	$11,299	$7,457	$3,842	0.000				
2019Q2	$7,304	$6,066	$1,238	0.000	$9,514	$7,517	$1,997	0.000	$11,364	$7,828	$3,536	0.000				
2019Q3	$7,711	$6,277	$1,434	0.000	$9,506	$7,799	$1,707	0.000	$11,177	$7,868	$3,309	0.000				
2019Q4	$8,365	$6,744	$1,621	0.000	$10,092	$8,319	$1,773	0.001	$12,021	$8,526	$3,495	0.001				
2020Q1	$8,589	$7,131	$1,457	0.000	$10,148	$8,038	$2,110	0.000	$12,543	$8,645	$3,898	0.001				
2020Q2	$7,306	$5,865	$1,441	0.000	$9,212	$6,189	$3,023	0.000	$11,131	$6,478	$4,653	0.000				
2020Q3	$7,094	$5,598	$1,496	0.000	$9,073	$6,494	$2,580	0.000	$11,419	$7,267	$4,152	0.000				
2020Q4	$7,504	$6,101	$1,403	0.002	$10,023	$7,780	$2,243	0.000	$13,016	$8,060	$4,956	0.000				
2021Q1	$7,186	$6,082	$1,104	0.007	$10,178	$7,793	$2,385	0.000	$12,587	$7,186	$5,401	0.000				
2021Q2	$7,626	$6,227	$1,399	0.002	$9,411	$7,355	$2,056	0.000	$11,997	$6,647	$5,350	0.000				
2019 Average			**$1,500**				**$2,006**				**$3,546**					
Change from 2019 average in:																
2020Q1			-$42	0.877			$104	0.757			$352	0.569	-$395	0.559	-$249	0.724
2020Q2			-$59	0.836			$1,017	0.020			$1,107	0.077	-$1,166	0.090	-$91	0.905
2020Q3			-$4	0.990			$574	0.205			$606	0.385	-$610	0.421	-$33	0.969
2020Q4			-$97	0.785			$237	0.609			$1,410	0.091	-$1,507	0.096	-$1,173	0.219
2021Q1			-$396	0.226			$379	0.468			$1,856	0.046	-$2,251	0.022	-$1,477	0.166
2021Q2			-$100	0.793			$50	0.924			$1,805	0.043	-$1,905	0.049	-$1,755	0.089
Sample size	887	462			524	273			226	123						

6e. Earnings Impacts by Level of Depressive Symptoms

| Calendar | Low | | | | Medium | | | | High | | | | Difference in Changes Since 2019 | | | |
| | | | | | | | | | | | | | Medium -- Low | | High -- Low | |
Quarter	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$7,960	$5,484	$2,476	0.000	$7,809	$5,159	$2,651	0.000	$6,904	$5,856	$1,048	0.006				
2018Q2	$8,029	$5,789	$2,240	0.000	$7,817	$5,649	$2,168	0.000	$7,016	$5,629	$1,387	0.000				
2018Q3	$8,343	$5,863	$2,480	0.000	$7,993	$5,986	$2,007	0.000	$7,219	$5,858	$1,361	0.000				
2018Q4	$8,788	$6,240	$2,548	0.000	$8,525	$6,270	$2,255	0.000	$7,739	$6,244	$1,495	0.000				
2019Q1	$8,477	$5,740	$2,737	0.000	$8,423	$5,968	$2,455	0.000	$7,590	$6,244	$1,345	0.002				
2019Q2	$8,853	$6,467	$2,386	0.000	$8,785	$6,945	$1,840	0.001	$8,057	$7,049	$1,008	0.022				
2019Q3	$9,035	$6,629	$2,407	0.000	$8,858	$7,321	$1,538	0.003	$8,347	$7,194	$1,153	0.011				
2019Q4	$9,716	$7,183	$2,533	0.000	$9,657	$7,624	$2,034	0.001	$8,915	$7,806	$1,109	0.030				
2020Q1	$9,979	$6,887	$3,092	0.000	$9,833	$7,685	$2,148	0.001	$8,892	$8,537	$356	0.522				
2020Q2	$8,725	$5,452	$3,274	0.000	$8,614	$5,945	$2,668	0.000	$7,998	$6,892	$1,105	0.041				
2020Q3	$8,669	$5,510	$3,159	0.000	$7,838	$6,589	$1,249	0.040	$8,065	$6,539	$1,526	0.003				
2020Q4	$9,309	$6,500	$2,809	0.000	$8,903	$7,702	$1,202	0.085	$8,797	$6,853	$1,944	0.001				
2021Q1	$9,166	$6,640	$2,526	0.000	$8,941	$7,206	$1,735	0.008	$8,299	$6,653	$1,646	0.003				
2021Q2	$9,274	$6,640	$2,634	0.000	$8,181	$6,832	$1,349	0.041	$8,583	$6,664	$1,919	0.001				
2019 Average			**$2,516**				**$1,966**				**$1,154**					
Change from 2019 average in:																
2020Q1			$576	0.062			$182	0.632			-$798	0.029	-$394	0.420	-$1,374	0.004
2020Q2			$758	0.036			$702	0.105			-$49	0.899	-$56	0.921	-$806	0.126
2020Q3			$643	0.102			-$717	0.120			$372	0.354	-$1,361	0.025	-$272	0.629
2020Q4			$294	0.501			-$765	0.129			$790	0.087	-$1,058	0.112	$497	0.434
2021Q1			$10	0.982			-$232	0.654			$492	0.300	-$242	0.723	$482	0.460
2021Q2			$118	0.795			-$617	0.249			$765	0.139	-$736	0.296	$647	0.348
Sample size	663	358			347	213			627	287						

Supplemental Exhibit 7: Impacts on Average Unemployment Insurance Benefits by Calendar Quarter for Subgroups

7a. UI Benefit Impacts by Age

| Calendar Quarter | Under 20 | | | | 20-22 | | | | 23-24 | | | | Difference in Changes Since 2019 | | | |
| | | | | | | | | | | | | | <20 -- 23-24 | | 20-22 -- 23-24 | |
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$44	$10	$34	0.128	$96	$64	$33	0.305	$119	$68	$51	0.266				
2018Q2	$47	$11	$36	0.198	$75	$42	$33	0.274	$94	$87	$6	0.864				
2018Q3	$37	$16	$21	0.272	$63	$74	-$11	0.794	$95	$92	$3	0.943				
2018Q4	$52	$48	$4	0.913	$54	$85	-$31	0.440	$106	$60	$46	0.283				
2019Q1	$87	$47	$39	0.362	$54	$121	-$67	0.152	$142	$105	$37	0.497				
2019Q2	$64	$21	$44	0.105	$82	$132	-$49	0.350	$119	$126	-$7	0.913				
2019Q3	$78	$50	$28	0.496	$155	$79	$75	0.075	$83	$75	$9	0.842				
2019Q4	$72	$49	$23	0.583	$142	$53	$88	0.008	$111	$40	$71	0.088				
2020Q1	$63	$74	-$11	0.773	$95	$86	$9	0.786	$161	$82	$79	0.107				
2020Q2	$970	$1,373	-$403	0.104	$1,360	$1,614	-$255	0.212	$1,603	$2,017	-$414	0.155				
2020Q3	$1,019	$1,682	-$663	0.015	$1,311	$1,418	-$107	0.569	$1,488	$1,686	-$198	0.426				
2020Q4	$604	$935	-$331	0.129	$732	$680	$52	0.627	$656	$657	-$1	0.994				
2021Q1	$819	$1,029	-$211	0.320	$908	$982	-$74	0.606	$1,081	$1,159	-$78	0.710				
2021Q2	$698	$1,183	-$485	0.145	$895	$941	-$46	0.776	$883	$988	-$105	0.626				
2019 Average			$33				$12				$28					
Change from 2019 average in:																
2020Q1			-$45	0.291			-$2	0.953			$52	0.324	-$96	0.153	-$54	0.414
2020Q2			-$437	0.077			-$266	0.191			-$442	0.127	$5	0.990	$175	0.620
2020Q3			-$696	0.010			-$119	0.532			-$225	0.361	-$471	0.197	$106	0.733
2020Q4			-$365	0.093			$40	0.714			-$28	0.823	-$336	0.182	$69	0.683
2021Q1			-$244	0.246			-$86	0.558			-$106	0.608	-$139	0.638	$20	0.939
2021Q2			-$519	0.115			-$58	0.725			-$132	0.533	-$386	0.324	$74	0.782
Sample size	419	219			781	386			437	253						

7b. UI Benefit Impacts by Usual High School Grades

Calendar Quarter	Mostly A's and B's				Mostly C's and Below				Difference in Changes Since 2019: <=C's -- A's & B's	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value
Impact										
2018Q1	$100	$44	$57	0.043	$74	$63	$11	0.729		
2018Q2	$68	$40	$28	0.238	$67	$60	$7	0.812		
2018Q3	$72	$55	$18	0.502	$45	$80	-$34	0.401		
2018Q4	$77	$62	$15	0.565	$44	$79	-$35	0.401		
2019Q1	$96	$106	-$10	0.788	$71	$83	-$13	0.752		
2019Q2	$80	$125	-$45	0.301	$99	$64	$36	0.366		
2019Q3	$121	$90	$31	0.378	$105	$40	$65	0.024		
2019Q4	$125	$60	$65	0.035	$102	$28	$73	0.011		
2020Q1	$100	$78	$22	0.475	$105	$88	$17	0.644		
2020Q2	$1,138	$1,627	-$489	0.004	$1,562	$1,743	-$181	0.458		
2020Q3	$1,123	$1,653	-$529	0.001	$1,506	$1,422	$84	0.683		
2020Q4	$590	$732	-$142	0.168	$796	$748	$48	0.729		
2021Q1	$1,175	$1,144	$31	0.861	$790	$986	-$195	0.124		
2021Q2	$1,028	$1,242	-$213	0.407	$743	$877	-$134	0.315		
2019 Average			$10				$40			
Change from 2019 average in:										
2020Q1			$12	0.722			-$23	0.564	-$36	0.503
2020Q2			-$499	0.003			-$221	0.359	$278	0.346
2020Q3			-$539	0.001			$44	0.831	$583	0.027
2020Q4			-$152	0.145			$8	0.955	$160	0.362
2021Q1			-$205	0.108			-$9	0.958	$196	0.370
2021Q2			-$144	0.283			-$254	0.324	-$110	0.706
Sample size	963	530			674	328				

7c. UI Benefit Impacts by Educational Attainment

| Calendar Quarter | High School Diploma/Equiv | | | | <1 Year of College | | | | 1+ Year of College | | | | Difference in Changes Since 2019 | | | |
| | | | | | | | | | | | | | HS -- 1+ Year Coll | | <1 Year -- 1+ Year Coll | |
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$85	$54	$31	0.275	$108	$30	$78	0.089	$78	$63	$15	0.697				
2018Q2	$64	$43	$21	0.376	$57	$70	-$14	0.735	$87	$38	$48	0.201				
2018Q3	$59	$53	$6	0.846	$25	$72	-$48	0.183	$108	$81	$27	0.567				
2018Q4	$78	$79	-$1	0.981	$30	$54	-$24	0.396	$78	$57	$21	0.606				
2019Q1	$71	$66	$5	0.873	$88	$120	-$32	0.597	$140	$146	-$6	0.934				
2019Q2	$86	$71	$16	0.703	$70	$174	-$104	0.110	$128	$107	$21	0.753				
2019Q3	$111	$53	$58	0.058	$148	$135	$12	0.865	$101	$52	$48	0.230				
2019Q4	$103	$24	$80	0.003	$130	$98	$32	0.562	$139	$57	$81	0.091				
2020Q1	$95	$60	$34	0.241	$75	$95	-$19	0.710	$142	$116	$26	0.646				
2020Q2	$1,368	$1,567	-$199	0.286	$1,205	$1,753	-$548	0.083	$1,214	$1,828	-$614	0.029				
2020Q3	$1,333	$1,663	-$330	0.084	$1,266	$1,481	-$215	0.427	$1,089	$1,422	-$333	0.141				
2020Q4	$754	$822	-$68	0.593	$673	$494	$179	0.194	$487	$766	-$279	0.044				
2021Q1	$1,088	$1,069	$20	0.893	$784	$868	-$84	0.693	$695	$1,151	-$456	0.019				
2021Q2	$984	$973	$11	0.948	$688	$1,159	-$471	0.136	$697	$987	-$290	0.164				
2019 Average			$40				-$23				$36					
Change from 2019 average in:																
2020Q1			-$5	0.875			$4	0.956			-$10	0.853	$5	0.938	$14	0.871
2020Q2			-$238	0.205			-$525	0.092			-$650	0.019	$411	0.220	$125	0.765
2020Q3			-$370	0.054			-$192	0.479			-$369	0.101	$0	0.999	$177	0.616
2020Q4			-$108	0.405			$202	0.150			-$315	0.027	$208	0.280	$517	0.010
2021Q1			-$20	0.893			-$61	0.773			-$492	0.012	$473	0.053	$432	0.133
2021Q2			-$29	0.866			-$448	0.153			-$326	0.118	$297	0.268	-$122	0.745
Sample size	841	462			366	183			430	213						

7d. UI Benefit Impacts by Race-Ethnicity

Calendar Quarter	Non-Hispanic Black				Hispanic				White/Another Race				Difference in Changes Since 2019			
													Black -- White/Another		Hispanic -- White/Another	
	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Treatment	Control	Impact	p-value	Amount	p-value	Amount	p-value
Impact																
2018Q1	$80	$62	$18	0.498	$85	$42	$43	0.269	$127	$31	$97	0.130				
2018Q2	$73	$46	$26	0.224	$72	$72	$0	0.997	$41	$0	$41	0.026				
2018Q3	$83	$56	$27	0.274	$50	$94	-$44	0.385	$9	$29	-$21	0.398				
2018Q4	$65	$59	$6	0.831	$70	$103	-$34	0.482	$59	$25	$34	0.371				
2019Q1	$93	$63	$30	0.302	$53	$188	-$135	0.059	$105	$24	$81	0.108				
2019Q2	$100	$90	$10	0.808	$60	$167	-$106	0.097	$80	$0	$80	0.007				
2019Q3	$120	$67	$54	0.090	$97	$92	$5	0.923	$96	$37	$59	0.177				
2019Q4	$97	$43	$54	0.033	$170	$51	$119	0.017	$68	$60	$8	0.882				
2020Q1	$84	$70	$15	0.626	$164	$90	$73	0.121	$80	$106	-$27	0.716				
2020Q2	$1,198	$1,353	-$155	0.355	$1,569	$1,982	-$413	0.143	$1,181	$2,178	-$997	0.015				
2020Q3	$1,344	$1,499	-$155	0.373	$1,314	$1,548	-$234	0.309	$885	$1,847	-$962	0.013				
2020Q4	$711	$738	-$27	0.819	$730	$717	$14	0.920	$426	$785	-$360	0.068				
2021Q1	$916	$1,040	-$124	0.378	$1,121	$1,036	$84	0.651	$528	$1,092	-$564	0.037				
2021Q2	$852	$987	-$135	0.428	$1,040	$1,073	-$33	0.895	$462	$1,000	-$538	0.044				
2019 Average			$37				-$29				$57					
Change from 2019 average in:																
2020Q1			-$22	0.513			$103	0.040			-$84	0.231	$62	0.428	$187	0.030
2020Q2			-$192	0.253			-$384	0.172			-$1,054	0.008	$862	0.046	$671	0.169
2020Q3			-$192	0.270			-$205	0.378			-$1,019	0.007	$827	0.046	$814	0.066
2020Q4			-$64	0.593			$43	0.756			-$416	0.032	$353	0.122	$459	0.054
2021Q1			-$160	0.253			$114	0.544			-$621	0.019	$461	0.124	$735	0.024
2021Q2			-$172	0.314			-$3	0.990			-$595	0.023	$423	0.176	$592	0.101
Sample size	887	462			524	273			226	123						

7e. UI Benefit Impacts by Level of Depressive Symptoms

Calendar Quarter	Low Treatment	Low Control	Low Impact	Low p-value	Medium Treatment	Medium Control	Medium Impact	Medium p-value	High Treatment	High Control	High Impact	High p-value	Difference in Changes Since 2019 Medium -- Low Amount	Medium -- Low p-value	High -- Low Amount	High -- Low p-value
Impact																
2018Q1	$89	$53	$36	0.264	$51	$65	-$14	0.700	$122	$39	$84	0.031				
2018Q2	$63	$31	$33	0.145	$90	$82	$8	0.885	$66	$44	$22	0.408				
2018Q3	$58	$24	$34	0.107	$70	$136	-$66	0.425	$53	$62	-$8	0.792				
2018Q4	$68	$45	$22	0.432	$42	$77	-$34	0.578	$65	$91	-$26	0.547				
2019Q1	$111	$102	$9	0.861	$61	$57	$4	0.906	$73	$122	-$49	0.287				
2019Q2	$101	$127	-$26	0.632	$50	$14	$36	0.048	$95	$135	-$40	0.454				
2019Q3	$118	$71	$46	0.227	$134	$55	$79	0.147	$91	$81	$9	0.806				
2019Q4	$106	$54	$52	0.117	$173	$33	$140	0.008	$84	$53	$31	0.309				
2020Q1	$107	$83	$24	0.512	$116	$86	$31	0.575	$85	$77	$8	0.843				
2020Q2	$1,268	$1,526	-$259	0.227	$1,289	$2,030	-$741	0.016	$1,311	$1,586	-$275	0.240				
2020Q3	$1,296	$1,523	-$227	0.255	$1,224	$1,671	-$447	0.132	$1,257	$1,537	-$280	0.189				
2020Q4	$676	$761	-$85	0.543	$618	$663	-$45	0.747	$649	$766	-$116	0.396				
2021Q1	$981	$1,019	-$38	0.811	$844	$965	-$121	0.557	$888	$1,141	-$253	0.171				
2021Q2	$914	$898	$16	0.927	$817	$845	-$28	0.894	$804	$1,292	-$488	0.064				
2019 Average			$20				$65				-$12					
Change from 2019 average in:																
2020Q1			$4	0.919			-$34	0.538			$20	0.656	-$38	0.577	$16	0.794
2020Q2			-$279	0.193			-$806	0.008			-$263	0.261	-$527	0.156	$16	0.960
2020Q3			-$247	0.222			-$511	0.079			-$268	0.207	-$264	0.456	-$20	0.945
2020Q4			-$105	0.462			-$110	0.435			-$104	0.448	-$5	0.981	$1	0.998
2021Q1			-$58	0.718			-$186	0.362			-$241	0.186	-$128	0.623	-$183	0.453
2021Q2			-$5	0.978			-$93	0.659			-$476	0.069	-$89	0.745	-$472	0.132
Sample size	663	358			347	213			627	287						

Supplemental Exhibit 8: Uncertainty Analyses for Year Up's Total Net Benefits

Statistic	Participants	Employers	Perspective Government, Federal	Government, State/Local	Rest of Society	Society as a whole (Sum)
Recalculation Analysis – Employer Returns and Discount Rate						
Net benefit, assuming return to employers of:						
50% base case ($)	30,830	-8,059	15,408	4,319	-8,614	33,884
Alternative assumptions ($)						
0%	30,830	-16,118	15,408	4,319	-8,614	25,825
115%	30,830	2,418	15,408	4,319	-8,614	44,361
Net benefit, assuming discount plus inflation rate of:						
5% base case ($)	30,830	-8,059	15,408	4,319	-8,614	33,879
Alternative assumptions ($)						
3%	33,427	-8,059	16,669	4,610	-8,483	38,164
8%	25,649	-8,059	13,747	5,107	-8,788	27,656
Monte Carlo Analyses with Best and Worst Case Recalculations						
Monte Carlo analysis with 50% corporate partner return, 5% discount plus inflation rate (base case)						
Costs and benefits ($)						
Mean cost	-169	16,126	-1,431	-2,128	9,966	22,364
Mean benefit	31,195	8,052	13,363	2,591	982	56,183
Mean net benefit	31,364	-8,074	14,794	4,719	-8,984	33,819
Std. deviation	3,837	1,733	1,578	621	1,098	5,982
Probability of (%)						
Net gains	100	0	100	100	0	100
Net losses	0	100	0	0	100	0
Monte Carlo analysis with 0% corporate partner revenue return, 8% discount plus inflation rate (worst case)						
Costs and benefits ($)						
Mean cost	-158	16,126	-1,373	-2,025	10,005	22,575
Mean benefit	26,206	0	11,859	3,476	887	42,428
Mean net benefit	26,364	-16,126	13,233	5,501	-9,115	19,853
Std. deviation	3,507	1,629	1,428	657	1,089	5,544
Probability of (%)						
Net gains	100	0	100	100	0	>99.9
Net losses	0	100	0	0	100	<0.1
Monte Carlo analysis with 115% corporate partner revenue return, 3% discount plus inflation rate (best case)						
Costs and benefits ($)						
Mean cost	-177	16,126	-1,473	-2,203	9,939	22,212
Mean benefit	34,147	18,535	14,514	2,801	1,055	71,051
Mean net benefit	34,323	2,409	15,987	5,003	-8,882	48,839
Std. deviation	4,040	2,129	1,699	648	1,103	6,434
Probability of (%)						
Net gains	100	87	100	100	0	100
Net losses	0	13	0	0	100	0

Sources: Chapter 6 Exhibits and assumptions detailed in Supplemental Exhibit 9.
Note: The recalculation analysis varies the assumed parameters for first, only the return to employers and second, only the discount rate. Monte Carlo analysis is a standard approach to characterizing the overall uncertainty that results from combining costs and benefits that individually are estimated with uncertainty. In each of the analyses above, costs, benefits, and net benefits are recalculated 50,000 times using varying combinations of possible values for each CBA element. Values for corporate partner revenue return and discount rate are varied to align with a base case, worst case, and best-case scenario. The specified possible values for the remaining elements are detailed in Supplemental Exhibit 9. Probability of net gains and net losses calculated as the share of the 50,000 recalculates that are respectively greater and less than zero. Discount rates assume a 2 percent inflation rate plus a 1, 3, or 6 percent adjustment to reflect the time value of money.

Supplemental Exhibit 9: Summary of Assumptions by Component for the Cost Benefit Analysis

This table details assumptions underlying analyses in Chapter 5 and the Monte Carlo analysis of uncertainty in Supplemental Exhibit 8. Assumptions are organized by cost and benefit component. For additional details, see Fein et al. (2021) and Judkins et al. (2021).

Component	Assumptions, Notes and Data Sources	Monte Carlo Specification		
Year Up services	The study's main estimate for Year Up costs is based on a single program-level observation. It reflects costs for the particular realization of the program PACE studied (e.g., labor, space, and administrative costs faced by local offices in 2013-14) and possible errors in local cost reporting. The Monte Carlo analysis parameterizes this uncertainty based on variation in office-level costs. The Year Up program as evaluated in this CBA includes a specific set of sites. Expansion (or replication) would involve some other set of sites, with different costs. **Data sources**: Year Up revenue and expense reports for 2013-2014 and administrative enrollment counts.	**Distribution:** Normal with mean of $27,158 (base case estimate) and standard deviation of $2,250 (observed office-level per-participant costs)		
Education and training outside Year Up	Estimated costs for non-Year Up education and training represent treatment-control difference in estimated individual total costs of enrollment in education and training outside of Year Up. Individual total costs of enrollment are calculated as months of enrollment multiplied by monthly costs of enrollment. Months are observed for each institution attended (that is, enrollment spells measured in months are a unit quantity). External data provide estimates of institution-level monthly costs of an enrollment (unit cost) for each institution. Each participant's individual estimated cost of enrollments is then the sum of the costs of all of the individual's enrollments (unit quantity multiplied by unit cost) summed over all of the participant's enrollments. Enrollment spells for the first five years after random assignment are included in the cost estimate, with enrolled months a deduplicated blend of enrollments observed in the NSC and PACE 18-month survey. IPEDS data provides institution-level unit costs that are matched to individual enrollments. **Data sources:** National Student Clearinghouse (NSC); 18- and 36-month surveys; Year Up administrative enrollment data; Integrated Postsecondary Education Data System (IPEDS); and PACE 18-month survey.	**Distribution:** Normal with means and standard deviations based on impact estimates using base case and high and low discount rates		

Monte Carlo Specification detail for Education and training outside Year Up:

	Discount plus inflation rate		
	0.05	*0.03*	*0.08*
Mean (impact estimates)	-$3,238	-$3,391	-$3,027
Std dev (Std err of impact estimates)	$746	$800	$676

Component	Assumptions, Notes and Data Sources	Monte Carlo Specification		
Control group use of supportive services in the community	Estimated from PACE 18-month survey questions on receipt of career counseling, help arranging supports for employment, education or training, or support for job search. Cost of services were assumed to equal costs of WIA core services. Specific assumptions made to estimate these costs and additional details described in Appendix F, Judkins, et al (2021) **Data sources:** PACE 18-month survey. Costs of WIA core services reported in Fortson, *et al.* (2017).	**Distribution:** Normal with mean of -$785 (base case estimate) and standard deviation of $785 (acknowledges large degree of uncertainty in estimate)		
Earnings	The CBA covers impacts on total earnings over the first seven years after intake into the experiment. For the CBA, earnings impacts in the CBA are based on the same statistical model as other chapters, with outcomes discounted to account for inflation and the time value of money. **Data source:** National Directory of New Hires (NDNH).	**Distribution:** Normal with means and standard deviations based on impact estimates using base case and high and low discount rates. Drawn from bivariate normal distribution of earnings and education and training with an assumed correlation of $\rho = -0.12$ based on calculated correlation between total individual-level earnings reported in the PACE 36-month survey and the individual-level CBA estimates of total education and training costs. Findings are robust to assuming no correlation.		
			Discount plus inflation rate	
		0.05	*0.03*	*0.08*
		Mean (impact estimates) $30,056	$33,013	$26,206
		Std dev (std error of impacts) $3,176	$3,460	$2,808
Fringe benefits	Increases in earnings and full-time work imply increases in fringe benefits such as health insurance, employer retirement contributions, paid vacation, and sick leave. This analysis estimates increases in fringe benefits by multiplying external estimates of average benefit value as a share of earnings by observed earnings gains. Sources for external estimates of the value of fringe benefits and the methodology of applying these to earnings gains are from Schaberg and Greenberg's (2020) CBA of the WorkAdvance. See Judkins, et al. (2021) for additional details. **Data sources:** PACE 18-month, 3-year, and 72-month follow-up surveys. Comparison shares of fringe benefit receipt from Solis and Galvin (2012).	**Multiplier:** Uniform distribution from 0.39 to 0.42 (based on base case ratio of fringe benefits to earnings). Calculated as multiplier * earnings		

Component	Assumptions, Notes and Data Sources				Monte Carlo Specification			
Taxes	Increased earnings also generate increases in taxes for treatment group members. The analysis includes estimated amounts for income, payroll, and sales taxes (assuming increased earnings increase taxable purchases). Treatment/control differences and averages of federal income and payroll and state income taxes are calculated by estimating tax profiles for small groups (at least 10, due to data privacy restrictions) of treatment or control group participants, with overall means and differences in means calculated to adjust for group size. Additional detail on tax simulation and sales tax estimation in Judkins, et al. (2021). **Data sources**: National Directory of New Hires (NDNH); baseline survey; and Consumer Expenditure Survey (CEX), 2015, Table 1101. National Bureau of Economic Research taxsim model (Feenberg and Coutts 1993).				**Multiplier:** Based on average estimated tax rates, which vary slightly with discount rate plus inflation for all but FICA. Each tax is calculated multiplier * earnings **FICA employer portion:** 7.6%			
						Discount plus inflation rate		
						0.05	*0.03*	*0.08*
					Federal tax:	25.7%	25.2%	26.5%
					State and local taxes:	8.5%	8.6%	13.3%
Public benefits	Increases in earnings reduce treatment group members' eligibility for, and receipt of, means-tested public benefits. The CBA considers public benefits measured in the 36- and 72-month follow-up surveys, including food assistance (SNAP or WIC), TANF or other cash public assistance, unemployment insurance, housing assistance, and Medicaid (public health insurance) **Data Sources:** Shaberg and Greenberg (2020) for administrative cost rates for all but Medicaid, which uses Henderson (2005).	**Benefit**	**Calculation** (Participant share * marginal reduction rate = calculated reduction rate)	**Source**		**Multiplier:** All public benefits combined modeled as a single multiplier of earnings with a uniform distribution from 0.075 to 0.125 (based on base case ratio of all public benefits to earnings) Calculated as multiplier * earnings			
		SNAP /WIC	29% * 0.112 = 0.033	CBA (2015 Table 1				
		TANF	5% * 0.481 = 0.026	Calculated from USDA (2009)				
		Housing assistance	9% * 0.3 = 0.02	Federal housing assistance programs require recipients to pay 30 percent of income as rent.				
		UI or worker's comp	2.1 percentage point decrease @ $280/wk for 15 wks	Vroman (2018)				
		Medicaid	5.6 percentage point decrease * $6,131 annual per capita cost	Medicaid.gov				

Component	Assumptions, Notes and Data Sources	Monte Carlo Specification
Work-related expenditures	Increases in the number of hours worked among employed sample members likely increased expenses for Year Up participants for additional transportation, child-care, and other work-related costs.	**Multiplier:** Uniform distribution from 0 to 0.026, which is centered around base case ratio of work-related expenditures to earnings
	Assumptions: At baseline, 8.8 percent of treatment group members had children (Exhibit B-10 of Judkins et al 2021), while by the time of the 36-month survey, 20.5 percent had children and, at the 6-year survey, 28.8 percent had children (analysis of PACE surveys). Averaged over the follow-up period, the CBA assumes that 22.6 percent of treatment group members had a child. Based on Macartney and Laghlin (2011), we assume that 37.3 percent of these families had child-care costs and based on Mattingly et al (2016) that 10.1 percent of income is devoted to childcare costs for these households. So the estimated additional costs of childcare is the earnings impact multiplied by 0.226*0.373*0.101=0.0085.	Calculated as multiplier*earnings
	Based on impacts on full-time work, the study team assumes an average of 0.2 additional transportation trips per week for the treatment group. A trip is valued at $13 based on an analysis of the Survey of Income and Program Participation (Edwards 2016). The total cost is then 52 weeks multiplied by the product of 0.2 (additional trips per week) and $13 (estimated cost per trip). Total additional work expenditure is the sum of additional childcare and transportation expenditures.	
Year Up stipend	Average cost per study participant is calculated directly from Year Up program administrative records and adjusted by 0.96 to account for the small fraction of treatment group members that dropped out prior to enrollment.\n\n**Data source:** Year Up program administrative records.	**Distribution:** Normal with mean of $6,885 (base case estimate) and standard deviation of $2,498 (estimated from Year Up administrative data)
Corporate partner revenue gains	To the extent that investments in Year Up interns allow firms to profitably generate greater output, such returns should be included in the CBA. Assumptions of 0, 50 (base case), and 115 percent considered.\n\n**Data sources:** Year Up program revenue and expense records, interviews with corporate partners.	**Distribution:** Normal with mean of $16,118 * assumed return of 0, 50%, or 115% and standard deviation of $1,200 * 0.5 for assumed returns of 0 and 50% and $1,200 * 1.15 for assumed return of 115% (to acknowledge uncertainty)

Component	Assumptions, Notes and Data Sources	Monte Carlo Specification
Nonmarket time	Impact study findings show that Year Up substantially increased time spent either in education and training or working. As a result, participants had less time to engage in other activities they value—such as leisure, at-home childcare, and other domestic responsibilities. Following standard practices, this CBA estimates the value of these foregone non-market activities and subtracts this value from net benefits arising from increased income associated with Year Up participation. As detailed in Judkins et al (2021), the CBA estimates the value of each hour of personal time from observed wages and literature guidance and applies this valuation to the estimated hours lost to education and hours lost to work. **Data sources:** Earnings impacts in the CBA; impacts on employment (Exhibit 2-3); impacts on average weekly hours and average hourly wages from the Year Up implementation and early impact study (Exhibit 6-1 of Fein and Hamadyk 2018) for 18 months and three years from Fein et al (2021) (Exhibit 3-4) and for six years from Exhibit 2-3; impacts on FTE months enrolled by quarter estimated on data described in education and training and supportive services outside of Year Up above; Year Up program participation rates reported in Fein and Hamadyk (2018).	**Multiplier:** Uniform distribution from 0.4 to 0.6 (based on textbook recommendation in Schaberg and Greenberg, 2020). Calculated as multiplier*(share of impact due earnings due to increased hours) for hours working and multiplier*(value of impact on education and training hours) for education and training time
Deadweight loss	Year Up participation decreases public expenditure on other education and training, and participants' increased earnings lead to decreases in public benefits. These generate efficiency gains to the economy due to reduced government spending. **Assumptions:** Changes in public expenditures in the CBA multiplied by 0.19 as recommended by leading CBA textbook (Boardman, et al., 2018, Table 3.2) and following the approach in Shaberg and Greenberg (2020).	**Multiplier**: Calculated as 0.19 multiplied by change in government spending (based on textbook recommendation in Schaberg and Greenberg, 2020).

NOTE: Each cost and benefit is allocated to perspectives using ratios implied by base case analysis