

**Emergency Relief Fund for the Most Vulnerable and Disenfranchised: Evidence from
CUNY, the Public University System in New York City**

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1. Motivation and Problem Under Study

Closing college campuses and moving learning online has disrupted the educational careers of students and raised significant concerns about those students who depend on college housing, meal plans, jobs, and other support to stay safe and secure. Moreover, the pandemic has suddenly changed the economic environment many students depend on to maintain the financial support for their studies. Jobs and internships, which ensure students' financial well-being during their studies, have vanished overnight. In addition, grim labor-market prospects have halted graduates' career aspirations and professional dreams. As working-class neighborhoods in New York City's outer boroughs became the epicenter of the COVID-19 outbreak in March and April 2020, many in those dense, lower-income areas struggled due to lack of resources or because of the emotional impacts of isolation. The unsettling and difficult health and economic implications of this crisis were disproportionately felt by the most vulnerable people in these communities. For instance, at the City University of New York (CUNY), the public university system in New York City (NYC), 38% of students reported having lost their job by the end of April 2020 due to the COVID-19 pandemic¹, and 90% of them indicated increased need in food, childcare, housing, and utilities.²

To provide rapid-response financial support so the most vulnerable and disenfranchised students could cover their basic living expenses and to help ensure that they could remain in school and complete their degrees as the pandemic and its economic consequences continued to unfold, CUNY offered the

¹ Two-thirds of these students had worked at least 21 hours per week pre-COVID-19, and one-fifth at least 35 hours per week.

² Estimates are from an online student survey conducted by CUNY Office of Institutional Research and Assessment during May 2020.

Chancellor's Emergency Relief (CER) grant program, a one-time \$500 lottery-based grant targeted to undocumented and low-income students. During the second quarter of 2020, a total of \$3 million fund was distributed in three separate waves to 6,000 qualifying students.³ Importantly, receiving the CER grant did not affect student financial aid, and there were no restrictions on how students could use the grant.

The recipients were chosen randomly from a pool of 19,168 students who were eligible and had applied to the program. To be eligible students had to: (1) seek a degree at CUNY during school year 2019-20, and (2) belong to one of the following groups: undocumented or low-income students. In the case of low-income students, eligibility was determined by being within 12 credits of earning an undergraduate degree, and either having an Expected Family Contribution (EFC) of zero on their federal financial aid application (FAFSA) or being a parent with any EFC. In contrast, undocumented students did not have to be within certain credits of graduation to be eligible, and they could be seeking an undergraduate or graduate degree.⁴ Eligible students amounted to about 25,000 students or 9% of CUNY's undergraduate and graduate student population of 275,000 students. Eligible students were notified by email of their lottery eligibility and instructed on how to enter the lottery within a specified deadline as specified in Table 1. They were also informed that entering the lottery was no guarantee of being selected to receive a grant. Close to 77% of the eligible students (19,168 students) applied for the CER grant program. All participating students were notified of their status within a week of the lottery-application deadline. Those selected received their grants within two weeks of selection (precise dates are shown in Table 1).⁵

³ In each of the three waves, 2,000 qualifying students received the grant.

⁴ Starting in wave 2, 10% of the grants were targeted to international students seeking an undergraduate or graduate degree.

⁵ Students received cash payments either through direct deposit or by physical check mailed via the US Postal Service. Students were advised to review the mailing information and direct deposit information on their CUNYfirst account to avoid delays in receiving payment.

This project aims to: (1) analyze how the COVID-19 pandemic and the shutdown of NYC⁶ has impacted the educational careers and economic wellbeing of CUNY students; (2) evaluate the effectiveness of CUNY’s CER grant program to enhance its most vulnerable students’ financial support and reduce racial and socioeconomic inequalities in academic outcomes during the COVID-19 pandemic; and (3) identify how CUNY students’ perceptions of the challenges experienced by their communities have changed because of the pandemic, and document students’ resilient visions to overcome such collective challenges. To do so, we propose a threefold project consisting of:

1. ***COVID-19 Consequences on Students’ Economic Well-Being and Academic Performance.***

Combining originally collected survey data with academic administrative records, we propose to document the financial and personal burdens faced by CUNY students during the pandemic, and trace the medium-run consequences of the pandemic on these students’ economic well-being and academic performance. We will exploit variation on the percentage of people who tested positive for COVID-19 across boroughs (and zip codes if sample size allows) and over time to identify whether higher rates of positive PCR testing are associated with worse students’ outcomes. This analysis will give us a better perspective on how COVID-19 may be widening inequality and increasing poverty in NYC.

2. ***Causal Impact of the CER Grant Program on Students’ Academic Outcomes.*** Using academic administrative records, we will exploit the randomization in the distribution of the CER grant program to evaluate the short- and medium-term impacts this one-time cash grant has on students’ academic persistence, academic performance, and degree completion up to two years after grant receipt. Using survey data, we will explore the potential mechanisms behind these

⁶ NYC went “on pause” effective March 22, closing all non-essential retailers and services. Re-opening happened by phases, beginning on June 8 with the reopening of construction, manufacturing, agriculture, forestry, fishing. On July 22, the last phase allowed low-risk outdoor activities at 33% capacity and low-risk indoor activities at 25%.

findings, including online-learning challenges, child- or family-care, employment stability, anxiety and stress, and food, housing and financial insecurity, among other potential explanations. Our findings will be helpful in shaping policies to anticipate and respond to future challenges, especially among the most underserved populations of students in NYC.

3. ***COVID-19 and the Transformation of Neighborhoods and Communities.*** Using in-depth group workshops and the resilient-thinking approach, a methodology borrowed from ecology science, we will explore how COVID-19 has affected CUNY students' perceptions of the challenges experienced by their communities. Post-pandemic qualitative data will be compared to pre-pandemic qualitative data collected during action research conducted during 2019 by the Co-PI, Professor Rafael de Balanzó Joue. This analysis will move beyond students' academic outcomes and self-reported wellbeing to explore their perceptions of how COVID-19 has changed their own communities' priorities and challenges related to mobility, housing, social justice, food security, and social safety networks. The resilient-thinking approach will provide students with the tools they need to brainstorm on how to overcome such community-level challenges and come up with bottom-up visions that will be useful to city-policy analysis.

All three research approaches will focus on both the short- and medium-term effects, covering students' outcomes spanning from spring 2020 to summer 2022. The CUNY student population is arguably a population of substantial interest given its social and economic vulnerability and ethnic diversity. The severe economic vulnerability and wide diversity of CUNY, while making it a specifically interesting setting to analyze, does not impair the external validity of lessons learned about student behavior, as low-income students at CUNY are representative of US low-income college students (Marx and Turner 2018).

2. Literature Review

2.1. COVID-19 Consequences on Students' Economic Well-Being and Academic Performance

By describing the short- and medium-term effects of the pandemic on students' well-being and educational outcomes, we connect to a well-developed literature that documents the effect of crises on student well-

being, such as violent conflicts (Brück et al. 2019), natural disasters (Sacerdote 2012) or financial crises (Oreopoulos et al. 2012; Fernández-Kranz & Rodríguez-Planas 2018). We add to this literature a timely perspective on the arguably most severe disruption of educational careers that has been observed in recent history. At the same time, we contribute to a recent but growing literature analyzing the consequences of the COVID-19 pandemic on poverty (Bitler et al. 2020; Cortes & Forsythe 2020; Han et al. 2020) and college education (Education Trust 2020; Chirikov 2020; DREAM.US 2020; Soria 2020 a&b). A recent study by the PI, Núria Rodríguez-Planas, reveals that the early stages of the pandemic were grimmer for urban college students who ever received the federal Pell grant than students in the same college who had never received the Pell grant. During the spring semester, Pell recipients were more likely to experience challenges while attending online classes—mostly due to childcare responsibilities, lack of internet, being sick, or stressed—, and more likely to consider dropping a course because of concerns that their grade would jeopardize their financial assistance. Our proposed analysis would expand the analysis to two years after the pandemic. Most importantly, the use of administrative academic data in our proposed study would inform on academic persistence, performance, and degree completion for a representative sample of CUNY students, eliminating concerns with survey non-response bias. Furthermore, our proposal to exploit variation on the percentage of people who tested positive for COVID-19 across NYC and over time, would inform on whether higher rates of positive PCR testing are associated with worse students' outcomes.

2.2. Causal Impact of the CER Grant Program on Students' Academic Outcomes

While there is a well-established literature on the effectiveness of tuition financial assistance on students' academic and labor-market outcomes⁷, the evidence on the effectiveness of non-tuition financial assistance is considerably scarcer. Tables 2 and 3 summarize key elements and findings of five randomly controlled

⁷ See Dynarski (2003); Broton et al. (2016); Fack & Grenet (2015); Castleman & Long (2016); Denning (2019); Bettinger et al. (2019); Page et al. (2019).

trials (RCT) interventions including some form of non-tuition financial assistance in US colleges.⁸ Similar to the CER grant program, these five programs targeted low-income college students and offered non-tuition awards comparable to that of the CER grant program.⁹ They were mostly successful in retaining students one to three years after enrollment into the program and/or granting them a degree three to six semesters after enrollment. However, with the exception of *Wisconsin Scholars Grant* evaluated by Goldrick-Rab et al. (2016), the other four programs were more comprehensive as they offered additional support services such as advising and tutoring, making it difficult to extrapolate their findings to the CER grant program. Indeed, there is evidence that the impact of financial incentives for good grades are short lived unless they are accompanied with academic support services (Angrist et al. 2009). Our proposed study would be the first to conduct a randomized evaluation of emergency funds targeted to college students during a time of unexpected income loss and extreme uncertainty like the current pandemic, yielding tremendous value both for understanding the consequences of COVID-19 on college students, and for emergency aid more generally.

2.3. COVID-19 and Resilience Thinking

Thomas Homer-Dixon (2010) explains that “the resilience thinking approach offers conceptual tools to help us cope with the bewildering surprises and challenges of our new century”. In such context, the adaptive cycle model (Holling 1986) is a useful metaphor and conceptual model for understanding long-term dynamics of change for social systems as complex systems (Sundstrom & Allen, 2019). According to Berinyuy et al. (2014), the adaptive cycle model is also useful to understand the dynamics of community

⁸ Geckeler et al. (2008) also offer insightful descriptive results and lessons learned from the Dreamkeeper and Angel fund emergency financial aid programs, but no causal analysis.

⁹ Because the awards are given over time in some cases, through Metrocards for public transportation and books in other cases, or are performance-based in others, comparison is not straightforward. Nonetheless, the dollar amount in these five interventions ranges between \$300 and \$1,000 dollars per student over the course of one to three years. Even in the case of the Wisconsin Scholars Grant, the \$3,500 per year could be smaller depending on the students’ pre-treatment out-of-pocket costs.

engagement and partnership building. We propose to use the resilient thinking approach to understand the dynamics of change in CUNY students' communities caused by the coronavirus pandemic and to do so using action research.

The applicability of the adaptive cycle into action research has been frequently applied to describe processes of change in a community of stakeholders within the context of agricultural land uses (Allison & Hobbs 2014), urban environments (Chaffin et al. 2016) and waste management (Bohensky 2008). It has also been used in urban economics to understand and compare urban policies from two different cities in the United Kingdom (Simmie & Martin 2010), and in the field of urban planning to analyze cities and their vulnerabilities—see Sellberg et al. (2018) in Australia; Schlappa & Neill (2013) in Europe; and Pelling & Manuel-Navarette (2011) in Mexico. However, few studies have used the adaptive cycle model to analyze college communities (Ratliff 2019; Berinyuy et al., 2014). Walker and Salt (2012) explain that communities, including college communities, are systems putting resilience thinking into practice to guide their trajectories so as to avoid crossing undesirable thresholds. Miller et al. (2011) explains that “the adaptive cycle allows those who are shaping academic research and higher education programs to think where and when the constructs of epistemological pluralism and reflexivity are most critical in the context of knowledge processing and learning in academic institutions”. Our contribution to this literature is to apply the adaptive cycle model as a diagnostic tool enabling us to explore through a participatory and inclusive approach the dynamics and trajectories of change caused by COVID-19 on CUNY students' communities and neighborhoods.

3. Main Hypotheses

3.1. Unexpected Negative Shocks

Since the first cases of COVID-19 were diagnosed in December 2019 in the city of Wuhan, the outbreak developed exponentially into a worldwide pandemic that has infected millions of people (55.2 million cases

of which 11.3 in the US as of mid-November), with a global death toll of 1.33 million (247,000 in the US).¹⁰ As the pandemic progressed people's fear and anxiety soared, uncertainty reigned, schools and colleges closed, and the economic activity halted, generating unexpected negative income shocks.

Such disruptions to the economy can create child-care overload, employment loss, housing instability, food insecurity, and inability to pay regular expenses, bills or debts. Any of these events (or the combination of several of them) generates further disarray, which is likely to impact students' academic performance and persistence. In addition, these events also cause stress and worsens anxiety, and may affect cognition, encouraging focus on immediate (Mullainathan and Shafir, 2013) rather than long-run consequences, ultimately affecting academic performance in both the short and longer run.

For college students, learning has been affected directly through the closing of college campuses and subsequent move to learning online by clearly changing students' ability to interact with courses, faculty, and classmates; and indirectly through the effects COVID-19 disruptions to society have had on them, personally. To better understand the impacts of the coronavirus on CUNY students, we will document how COVID-19 has affected CUNY students' academic performance and persistence, and degree completion, as well as their wellbeing. More specifically, we will focus on documenting how COVID-19 has affected students' (1) COVID-19 incidence rate; (2) challenges related to online teaching; (3) financial support received to cover student expenses related to the disruption of campus operations or the economy due to COVID-19, and its subsequent use; (4) need of services and resources to remain in college and succeed academically; (5) personal wellbeing (including mental health, and food and shelter security); (6) child- and family-care responsibilities; and (6) employment and household income.

To the extent that minorities: (1) have had a higher risk of getting sick and dying from COVID-19 (Price-Haygood et al. 2020), (2) work more in essential jobs, and (3) live in denser and more deprived areas, it is also likely that their lives have been more disrupted by COVID-19. At the

¹⁰ *The New York Times*, November 17 2020. <https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html>

same time, evidence seems to indicate that women have carried a heavier load than men in the provision of childcare during the COVID-19 crisis, even while still working, increasing the psychological distress of mothers of young children (Zamarro and Prados 2020). To explore whether COVID has had differential effects on students based on their socio-demographic characteristics, we will conduct subgroup analysis by gender, race and ethnicity, age groups, and presence of children in the household. Similarly, we will explore whether there is a differential impact across subgroups based on different measures of poverty and levels of disenfranchisement, including being a Pell recipient, transfer student, first-generation college student¹¹, English-Second-Language learner, or undocumented student. As we expect disruptions to be greater among those students living in boroughs with higher rates of positive PCR testing, we will exploit borough and time variation to identify whether a higher incidence or COVID-19 infection in students' neighborhood is associated with worse students' outcomes.

3.2. One-Time Emergency Grant

Despite being a one-time payment of \$500, the CER grant program may well have had a positive impact on students' academic outcomes because it was offered during a major and unexpected public health crisis and economic shutdown, becoming a life saver for those awarded with the emergency relief grant. To put it into perspective, the in-state full-time tuition at CUNY for 2020-21 is \$6,930 for those enrolled in a four-year college and \$4,800 for those enrolled in a two-year college; the Pell Grant award for 2019-20 ranged between \$320 and \$3,097.50 per semester, and the CARES Act HEERF Students Emergency Grant¹² for full-time students at CUNY ranged between \$356 and \$1,024.¹³

¹¹ First-generation college students are students who are the first in their family to attend college.

¹² Coronavirus Aid, Relief, and Economic Security (CARES) Act Higher Education Emergency Relief Fund (HEERF) Student Emergency Grant. Undocumented students were excluded from the CARES Act stimulus package as they are not eligible for federal student aid.

¹³ The grant amount varied with the student's EFC and the CUNY college attended, as well as whether the student had dependents. Part-time students received half of the amount.

In theory, emergency financial assistance targeted towards vulnerable and disenfranchised students facing an unexpected decline in income should have a positive impact on their academic persistence, performance and graduation. The reason is that such cash payment can be used to cover any unexpected expense caused by the pandemic or its disruption to the economic environment. To the extent that the \$500 award increased vulnerable and disenfranchised students' food, shelter, course materials, technology, health care, child-care, and/or financial security, and allowed them to cover crucial expenses during the toughest months of the pandemic, the program sought to encourage students' focus on their studies, improving their academic performance in the short run and reducing their odds of dropping a course. Doing well during the spring 2020 semester and summer 2020 term should help students progress through their degree requirements faster, and increase their odds of graduating or transferring to a four-year college. Receipt of non-tuition financial support in the midst of a pandemic could also impact their intrinsic motivation, which would also have medium- to long-term effects on their academic performance.

3.3. Students' Communities as Complex Systems Prompt to Change and Resilience

The hypothesis, here, is that the resilient-thinking approach, which will be taught to a subset of CUNY students through four workshops, will provide students with the tools they need to analyze key challenges experienced by their communities during the COVID-19 pandemic, and brainstorm on how to overcome them providing bottom-up solutions. More specifically, the resilient-thinking approach will: (1) teach students a conceptual framework that ought to assist them in identifying the different stakeholders in their community and how COVID-19 has impacted those stakeholders' relevance and weight within the community; (2) assist students in understanding the dynamics of change within their communities caused by the COVID-19 pandemic; (3) help students understand the dynamics of community engagement and partnership building generated as a consequence of the disruptions caused by COVID-19; (4) support students cope with the community-related uncertainty generated by COVID-19; and (5) assist students in identifying resilient solutions that will be useful to prepare for future crisis. Students will work in groups focusing on different topics including mobility, housing, social justice, food security, and social safety networks provided by both public

and private organizations and colleges. At CUNY, the CER grant program is one of many social services the university provides to its most vulnerable students.

4. Data

Table 4 summarizes key research elements for the proposed project, including a thorough description of the pre- and post-pandemic student-level data available, targeted populations, and sample sizes for each of the three proposed approaches. The timeline for instrument design, data collection, analysis, writing and deliverables for each of the three components of this proposal is attached in a separate document at the end of the proposal.

4.1. The Survey

The first part of the project entails a series of three large-scale online student surveys that will cover the following two populations: (1) a representative sample of the student population of CUNY; and (2) the 25,000 CUNY students eligible for the CER grant program. The objective of these surveys is to understand the impact of: (1) the pandemic on student financial and personal well-being as well as student coping behavior; and (2) the receipt of any stimulus payments received to cope with COVID19 challenges¹⁴ on students' consumer behavior, and wellbeing. The surveys will be administered via email, sent from an official email address of the CUNY administration. In addition to being less costly than telephone or in-person interviewing, online interviews can still be an effective way to interview a representative population (Yeager et al. 2011), it is also the mode used by other surveys, including the Survey on Economic Well-Being of US Households (SHED) conducted by the Board of Governors of the Federal Reserve System. For the full project, we aim at combining data of three survey waves, fielded in spring 2021 and 2022 and fall 2022 as described in the timeline.

¹⁴ This includes but is not limited to CER grant, CARES Act student grant, IRS economic impact payment of \$1,200, federal pandemic unemployment compensation and pandemic unemployment assistance for workers not traditionally eligible for unemployment insurance benefits.

All three surveys will collect students' baseline characteristics that we cannot observe in the administrative data, namely the number of family members the student lives with by age brackets; the household annual income in 2019; country of birth; first-generation college student status; pre-pandemic employment status including part- or full-time status, and essential worker status. In addition, the first survey, fielded in spring 2021, will cover the first year experience of students during the COVID-19 pandemic. We will ask students about their own financial and personal well-being, including financial support received to cover student expenses related to the disruption of campus operations or the economy due to COVID-19¹⁵, and its subsequent use (consumption, saving, or paying debt). Further, we will elicit expectation measures on how students believe the lockdown has impacted their own educational progress and economic well-being. The survey will also contain some questions assessing students' trust, anxiety, and financial, housing and food insecurity (see instrument for pilot survey #3 attached at the end of this proposal for more details on the types of outcomes we will collect). The second survey, fielded during fall 2021, will focus on medium-run personal and financial well-being as well as the labor-market situation of students who depend on paid work. We expect this period to be vital as we will have more clarity on whether the public health crisis has ignited a financial and economic crisis or has, instead, vanished, allowing the labor market to recover. Therefore, a focus of this questionnaire will also be put on student's expectations on graduation probabilities, labor market prospects, and job choice after graduation. Beyond repeating modules on financial and personal well-being and economic expectations, we will use the third survey (fielded during spring 2022) to gain additional insight into how the COVID-19 crisis has changed the academic environment in the medium run (such as the higher usage of distance learning and digital environments) and in how far students believe to benefit from these changes. The responses to all three surveys will be merged to CUNY administrative student records. The combination of survey responses with the administrative data will allow us to track students above and beyond the topics covered by the

¹⁵ Information on whether the student has received a federal Pell grant or has been awarded the CER grant is also available from CUNY administrative records.

survey by observing their full academic career (including grades, credits taken and earned, and major choice) from their entry into the CUNY system up until graduation. It will further enable us to analyze in how far survey response is associated with students' demographics and pre-pandemic academic performance.

4.2. The Experiment

The second part of the project will exploit the randomization of the CER grant program to estimate the causal effect of this program on CUNY students' academic performance, persistence and degree completion. The analysis will cover the universe of eligible students, namely 25,000 students and will focus on academic administrative data. The lottery-based assignment of the grants alleviates concerns about selection into grant receipt based on observable and unobservable characteristics and allows to estimate the causal impact of the program on the aforementioned outcomes. The focus on academic outcomes from CUNY administrative data, namely college continuation, credits taken and earned, GPA, college graduation and on time graduation, will avoid the concerns related to bias non-response that may emerge with outcomes from the surveys. Estimates will be intention-to-treat (ITT) estimates as presented in Research Methods Section below (Section 5.2).

We will also estimate the impact of the CER grant on students' financial and personal wellbeing as well as their expectations after graduation. To address potential concerns that may threaten internal validity of the causal impact of the CER grant program on outcomes obtained from the survey we will take a three-prong approach summarized in Table 5.

The main hypotheses and the detailed research design will be worked out and pre-registered at the America Economic Association RCT Registry before data sources are merged.

4.3. The Resilient Thinking Approach

We will conduct seven qualitative in-depth semi-structured group workshops: three of these group workshops were conducted before the coronavirus pandemic at Queens College during the fall semester 2019. The other four will be conducted, also at Queens College, at four different points in

time in spring and fall 2021 and 2022 (as shown in the timeline). Each time, between 20 and 30 students from different majors, races and ethnicities, and graduating years will be invited to participate.

These workshop will be facilitated by one or two moderators (the co-PI Rafael de Balanzó Joue and the trained-in-resilient-thinking Research Assistant). They will generally last 90 minutes. At the beginning of the workshop, students will be introduced to resilient-thinking analysis. They will then be asked to use such approach to: (1) ask themselves questions about the current systemic crisis related to COVID-19; (2) analyze the current risks; (3) develop a brainstorming session; and (4) define how to initiate a sustainable “transition” process. Through this process, students will analyze COVID-19-related challenges in their neighborhoods and identify visions on how to address them. Students will work in groups focusing on different topics including mobility, housing, social justice, food security, and social safety networks provided by both public and private organizations and colleges.

Post-pandemic qualitative data will be compared to pre-pandemic qualitative data (see Section 4.4 below for examples of such data) to identify how COVID-19 has modified students’ perceptions of the challenges in their communities, and their visions on best practices on how to address them.

4.4. Data Transfer Agreement, IRB Approval, Pilot Survey, and Pre-Pandemic Qualitative Data

We have already signed the De-Identified Data Transfer Agreement with The Office of Institutional Research & Assessment (OIRA) at CUNY to have access to students’ de-identified academic administrative records. We also received IRB approval (IRB File #2020-0475) to conduct the surveys, collect the de-identified academic records, merge both data sources using students’ CUNY ID, and conduct the analysis. Both documents are attached at the end of this proposal. We would like to request a waiver because our data would make it possible to identify a particularly at-risk population of undocumented students. Both the De-Identified Data Transfer Agreement with OIRA and the IRB protects the proprietary data to preserve the confidentiality of students’ survey responses as well as their academic administrative records.

We have already developed and fielded one survey instrument (pilot survey #1) at Queens College (QC), and are currently fielding two additional surveys (pilot surveys #2 and #3), one of which is targeted to QC students and the other to CUNY students eligible to receive the CER grant program. Analysis of these three pilot surveys will help us with the design of the survey instruments for the proposed research, and to increase survey non-response among at hard-to-reach socio-demographic groups in the proposed surveys to be conducted between spring 2021 and 2022 as explained in Appendix Table A.1. Pilot survey #3, which is the most comprehensive of the pilot surveys, is attached at the end of the proposal.

With pilot survey #1, which was fielded between July 24 and September 18 2020 to QC students enrolled in the spring semester, the Co-PI Rodríguez-Planas has already produced the IZA Discussion Paper entitled, “Hitting Where It Hurts Most: COVID-19 and Low-Income Urban College Students”, and submitted to the COVID-19 special issue at the *Journal of Public Economics*. The main findings of this manuscript were discussed in the Literature Review Section above (Section 2.1.). For your convenience, a copy of the IZA Discussion Paper can be found at: <http://ftp.iza.org/dp13644.pdf> .

The Co-PI Rafael de Balanzó Joue has already conducted three qualitative in-depth semi-structured group workshops using the resilient-thinking approach at Queens College during the fall semester 2019. Such data will serve as baseline for pre-pandemic students’ perceptions of their community challenges and pre-pandemic students’ visions, and will be compared to post-pandemic findings. Attached at the end of this proposal are examples of output produced from these pre-COVID-19 workshops. In particular, these two examples cover discussions on the availability of social services, and local education in the neighborhood of Jamaica, Queens. Importantly, Dr. de Balanzó Joue has continued to facilitate several workshops using the resilient-thinking analysis during the current pandemic via zoom workshops (for example, at the Pratt Institute, the Barcelona

Design Week 2020, the Civic Lab Art 2020, and the II International Network Conflicts, Policies and Social Movements Conference, among others).¹⁶

5. Research Methods and Preliminary Findings

5.1. Geographic and Time Variation in the Rates of Positive PCR Testing

The analysis documenting CUNY students' experiences during the pandemic and thereafter up until summer 2022 will study how different socio-demographic characteristics are associated with differential experiences post-COVID-19. These associations will not be causal. To the extent students living in boroughs with higher rates of positive PCR testing may experience greater COVID-19 related disruptions, we may expect them to experience worse outcomes. We will merge New York City data on the level of COVID-19 infections across boroughs (and zip codes if the sample size allows) and time (from spring 2020 to summer 2023)¹⁷ to the students' zip code of residence (available from CUNY administrative data), and exploit variation in infection rates across geographic areas and time to identify whether higher rates of infection in the students' area of residence is associated with worse students' outcomes. Such analysis will preclude us from picking up confounding effects between infection rates and other structural time-invariant characteristics of the boroughs (or zip-code areas) CUNY students live in because we will be able to identify how students' outcomes vary with the infection rate in their area of residence holding constant the area of residence. As we will observe the universe of students who are registered every semester from administrative academic records, we will be able to build a student panel dataset for each of the terms between spring semester 2020 and summer 2023, and hence, estimate an individual fixed effects model with semester and year fixed effects and borough (or zip-code) fixed effects for outcomes such as academic performance, enrollment, credits taken and earned, and college graduation. Most importantly, such model

¹⁶ <https://barcelonadesignweek.com/en/activities/workshop-resilient-thinking-design/>
<https://greenspacenyc.org/> ; <http://conflictosurbanos.org/>

¹⁷ A dataset on the rates of positive PCR testing overtime across boroughs and zip codes in NYC is available at: <https://github.com/nychealth/coronavirus-data>

will control for individual time-invariant unobserved heterogeneity. While we will explore whether we have enough individuals who respond to more than one survey to allow for the same regression model when using students' self-reported outcomes, the analysis on survey outcomes will most likely use a time-of-survey fixed effects and borough (or zip-code) fixed effects model as the dataset will be a repeated cross-sectional panel. In such case, our estimates will control for geographic-area time-invariant unobserved heterogeneity.

5.2. Impact Evaluation of the CER Grant Program

A common concern among randomly-designed impact evaluations is whether they will have enough statistical power. To inform us on what kinds of effect sizes we may expect, and whether the design allows us to detect such effects, we identified five randomized interventions offering some form of non-tuition financial assistance to low-income college students (discussed in Section 2.2). Because most of these interventions find beneficial statistically significant impacts on college persistence and/or completion in the medium-run, and given that the sample size of these earlier RCT interventions ranged between 410 students and 4,274 students, well below the sample size of our proposed evaluation of the CER grant program—19,168 students, of which 6,000 received the grant—, we would expect measurable outcomes in our intervention.

Importantly, preliminary findings for the spring 2020 semester using administrative academic data for the population of Queens College students who were eligible to receive the CER grant program—1,687 students, of which 427 received the \$500 award—indicates that the CER grant was successful in improving students' grades and increasing credits taken and earned. To obtain ITT estimates, we estimated the following regression:

$$Y_{ij} = \alpha_0 + \alpha_1 CER_{ij} + X'_{ij} \alpha_2 + w_1 + w_2 + \alpha_3 UNDOC_i + \alpha_4 (w_1 * UNDOC_i) + \alpha_5 (w_2 * UNDOC_i) + \varepsilon_{ij} \quad (1)$$

where Y_{ij} is the outcome of interest (for example, spring semester GPA) for student i in wave j ; CER_{ij} is a dummy variable that takes value 1 if student i was awarded the CER grant in wave j and value 0 otherwise; X'_{ij} is a vector of individual socio-demographic characteristics at baseline (that is, measured before the

lottery took place); w_1 and w_2 are wave dummies that take value of 1 if student i was eligible in that particular wave and 0 otherwise; $UNDOC_j$ is a dummy variable that takes value 1 if student i is an undocumented student and 0 otherwise; and $(w_1*UNDOC_i)$ and $(w_2*UNDOC_i)$ are the interactions between the wave dummies and the undocumented dummy variable. The wave dummies and the interaction between the wave dummies and the undocumented dummy variable are included because there were three separate lotteries (one for each wave) and within waves grants were awarded by lottery based on students' undocumented and low-income student status. Students can only be awarded the grant once. However, eligible students who were not awarded the grant in wave 1 are eligible to receive the grant in subsequent waves. ε_{ij} is the error term. Standard errors are clustered at individual level. Estimates are calculated using OLS regression for continuous outcomes and will be calculated using Logit or Probit for binary outcomes.

Our coefficient of interest, $\hat{\alpha}_1$, captures the intention-to-treat (ITT) estimates. It measures the treatment effect of the program's impact on outcome Y . Table 6 presents ITT estimates for spring 2020 semester GPA, credits taken, earned, and dropped. The first column displays control-group means for each of the outcomes, while the other columns present ITT estimates from estimating equation (1) with different controls in the vector X'_{ij} as indicated in the bottom of each column. We find that the CER grant increased the spring semester GPA by 19.9 percentage points, a 6% increase relative to the control-group spring semester GPA of 3.362¹⁸ (based on the raw data shown in column 1, which is the regression with no baseline controls). Sequentially adding different baseline characteristics only reduces the estimate a tad, which is expected since the award was randomized. In fact, we tested for equivalence in the socio-demographic characteristics of students in the treatment and control groups *before* the program began, and found that both groups looked alike with no statistically significant differences across the two groups. In the specification with all the controls, the CER grant increased the spring semester GPA by 5% (17.8 percentage points). We also observe that the CER grant increased both the number of credits taken and earned over the

¹⁸ While this GPA may seem high, grading was more lenient during spring 2020 semester. As a comparison, respondents of pilot survey #1 at Queens College had a spring semester GPA of 3.41.

spring semester by 5% (50.7 percentage points) and 7% (69.4 percentage points), respectively. All three estimates are statistically significant—albeit the estimate on credits taken only marginally so with $p < 0.10$. While the CER grant also reduced the credits dropped during the spring semester by 29% (18.7 percentage points), this estimate is only marginally statistically significant and loses precision once we add baseline controls. These preliminary estimates for the spring 2020 semester for Queens College suggest that the CER grant program was successful in improving students' grades and increasing credits taken and earned.

Our proposed research will expand the analysis to all CUNY colleges and analyze whether the beneficial effects of the CER grant persist overtime. For the CUNY-wide analysis, we will add to the equation (1) college fixed effects. We will also conduct a battery of sensitivity analysis such as clustering the standard errors at different levels or adjusting for multiple hypothesis testing. Subgroup analysis will be conducted by the timing of the award (wave 1 vs wave 2 vs wave 3), and undocumented and low-income status as the latter were most likely to also receive CARES Act emergency relief funds on top of the CER grant. Finally, we will use survey outcomes to identify potential mechanisms driving these results.

6. Dissemination and Team's Qualifications and Responsibilities

To maximize the outreach and impact of our results, we will adopt a range of different approaches. We emphasize that while academic excellence and publication at a high level is a key aim, the nature of the research is inherently policy-orientated. As a result, our aim is to reach both the academic audience but also stakeholders and policy makers in the realm of tertiary education. We describe some of our strategies to these joint aims in Appendix Table A.2.

The research team consists of two principal investigators, Núria Rodríguez-Planas (CUNY, and IZA) and Rafael de Balanzó Joue (CUNY and Urban Resilience Thinking Institute), a pre-doctoral research assistant, a researcher from *The Office of Research, Evaluation, and Program Support (REPS)* at CUNY and a data analyst from *The Office of Institutional Effectiveness (OIE)* at Queens College. Professor Rodríguez-Planas will be responsible for ensuring the project's success in the design and fielding of the surveys, methodology development and design, data analysis and writing of one policy brief, and two

academic paper of objectives 1 and 2. The research team will be strengthened by the participation of REPS as well as OIE. Both offices have agreed to provide support with extraction and management of student-level educational administrative data, survey administration, data analysis, and contributing to the writing of policy briefs or reports (see timeline and data agreements). Requested funds to cover a pre-doctoral research who will provide support to both PI and Co-PI in different tasks as indicated in the timeline and budget justification. Professor Rafael De Balanzó Joue (Civil Engineer Ph.D. in Sustainability) will lead the qualitative analysis contained in objective 3 and be responsible for writing of one policy brief, and one academic paper. His ample experience applying the *Resilient Thinking Approach* to urban design and planning participatory processes and facilitating community engagement in different communities will guarantee the success of the qualitative analysis. To bridge the quantitative and qualitative analyses, he will collaborate closely with Professor Núria Rodríguez-Planas. He will train a junior researcher in resilient-thinking analysis and who will thereafter assist him in conducting the workshops and analysis. Both professors have co-authored and published an article together applying the resilient-thinking approach to analyze urban planning cycles in Barcelona (De Balanzó & Rodríguez-Planas 2018). Because the Co-PIs Rafael de Balanzó Joue is the spouse of the PI Núria Rodríguez Planas, a CUNY COI management plan will be instituted as discussed in Appendix A.1.

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Tables (do not count against the 20-page limit for the proposal)

Table 1. Timing of the CER Grant Program

	Eligible students were invited to apply to the program	Applications were accepted within this timeframe¹	Award status was notified to students	Funds were distributed
Wave 1	April 6	April 6 to April 10	April 15	April 20
Wave 2	May 5	May 5 to May 10	May 13	May 18
Wave 3	June 29	June 29 to July 5	July 8	July 20

¹ No application was accepted after 5 pm on the closing date.

Table 2. Randomized Control Trials (RCT) of College Interventions Offering Non-Tuition Financial Support in the US, Key Elements of the Evaluations

	ASAP	Stay the Course	Opening Doors	One Million Degrees	Wisconsin Scholars Grant
RCT sites and study duration	CUNY from 2010 to 2013	Tarrant County Community College from 2013-2016	Multiple locations in Ohio from 2003-2006	Ten different sites in and around Chicago from 2016-2017	13 public universities in Wisconsin, cohort entering 2008
Intervention description	Comprehensive support for up to three years for full-time	Comprehensive case management and limited access to emergency financial assistance	Access to counselors and \$150 stipend per semester for each semester they work with a counselor (for a maximum of 2 semesters)	Regular meetings with a program coordinator who offers financial, academic, personal and professional support to students	Maximum of \$3,500 grant renewable for up to five years. Total amount per year depends on pre-treatment out-of-pocket costs
Targeted population	Low-income students (Pell eligible or below 200% FPL) with fewer than 12 credits earned.	Full-time (initially enrolled in at least 9 credit hours), low-income (Pell eligible or below 200% FPL) students with fewer than 30 credits earned	Part-and full-time, low-income (below 250% FPL) students with fewer than 12 credits earned at entry	First-time, low-income (Pell-eligible or Chicago STAR eligible) students with at least one full year of college remaining and a GPA over 2.0.	Wisconsin residents who graduated from a state public high school within three years of matriculating full-time to university. They had to have completed FAFSA and qualified for a Pell Grant
Non-tuition financial assistance	Free use of textbooks and MetroCard	Access to emergency financial assistance for qualified	\$150 stipend each semester (for 2 semesters) without	a \$750-\$1000 annual stipend as a performance-based grant as	Maximum of \$3,500 grant renewable for up to five years. Total amount

		expenses up to \$1500 over three years	restrictions on use	well as access to \$250 in enrichment grants	per year depends on pre-treatment out-of-pocket costs
<i>RCT evaluations</i>	Scrivener et al. (2015) for CUNY	Evans et al. (2017)	Scrivener and Weiss (2009)	Bertrand, Hallberg, Hofmeister, Morgan and Shirey (2019)	Goldrick-Rab et al. (2016)
<i>RCT sample sizes</i>	896 students in CUNY	869 students	2,139 students	4,274 students	1,500 students

Notes: See Fulcher et al. (2020) for a thorough description of these interventions and findings. ASAP stands for Accelerated Study in Associate Programs.

Table 3. Key Findings of College Interventions Offering Non-Tuition Financial Support in the US, Evaluated through Randomized Control Trials (RCT)

	ASAP	Stay the Course	Opening Doors	One Million Degrees	Wisconsin Scholars Grant
Intention-to-treat (ITT) estimate on academic persistence					
Outcome	Enrolled in college after six semesters	Enrolled in college after six semesters	Continuous enrollment from the 1 st through the 3 rd semester	Enrolled through the 1 st year	Enrolled after 2 years
Control means	0.173	0.44	0.93	.556	0.76
ITT estimate	+0.08**	+0.06*	+0.01	+0.06**	+0.018**
Percent increase (relative to the control mean)	+46%	+14%	+1%	+11%	+2.4%
Intention-to-treat (ITT) estimate on degree (or certificate) completion					
Outcome	Earned a degree from any college after six semesters	Earned a degree from any college after six semesters	Earned a degree or certificate through the 3 rd semester	Not available	Earned a four-year degree
Control means	0.218	0.182	0.025	n.a.	0.16
ITT estimate	+0.18 **	+0.04	-0.01	n.a.	+0.047**
Percent increase (relative to the control mean)	+83%	+22%	-40%		+29%

Notes: ITT estimates are basically the difference in mean outcomes between the treatment and control groups. Frequently, the ITT estimates are obtained from linear regressions with a dummy indicating program participant (treatment) and site controls and other socio-demographic controls measured before random assignment into the program. See Fulcher et al. (2020) for a thorough description of these interventions and findings. ASAP stands for Accelerated Study in Associate Programs. This table was built using information from Figures 3 and 4 in Fulcher et al. (2020) and Goldrick-Rab et al.(2016).

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table 4. Summary Table of Main Research Elements for the Proposed Project

	<i>Objective 1</i>	<i>Objective 2</i>	<i>Objective 3</i>
	<i>Quantitative Analysis</i>	<i>Quantitative Analysis</i>	<i>Qualitative Analysis</i>
Research Design	Descriptive Analysis: We will document academic and economic outcomes of CUNY students. We will also document differential outcomes by undocumented and low-income status.	Causal Analysis: Exploiting the lottery assignment of the Chancellor’s Emergency Relief (CER) Fund, we will compare the academic and economic outcomes of 6,000 recipients of the CER grant to control students who qualified for the CER grant but did not receive the grant by lottery. Estimates will be Average Treatment Effect on the Treated. Regression analysis will control for baseline characteristics to increase precision.	In-depth Group Workshops: Post-COVID-19 responses on community challenges will be compared to pre-COVID-19 responses on community challenges using the resilient thinking approach to investigate how interactive systems of people and nature cope and continue to develop in the face of the coronavirus pandemic.
Original Data & Administrative Data	Three surveys collected during school year 2020/21 and 2021/22. They will be merged with administrative academic data since student enrolled in CUNY	CUNY administrative academic data since the student enrolled in CUNY merged with survey data from objective 1.	Four post-COVID-19 in-depth group workshops and three pre-COVID-19 in depth group workshops. ^a
Pre-Pandemic Information, observed before the money was distributed	From CUNY student-level educational administrative data: <u>Socio-demographic characteristics:</u> gender, age, race/ethnicity, citizenship, zip code, residency type, Pell grant receipt, full-time/part-time status, transfer student indicator, major, seniority in college, college major, CUNY college(s) attended, first admission data, degree, degree completed term. In addition, we also have the following <u>academic information:</u> each term and cumulative GPA, credits earned and credits taken since enrollment at CUNY up to fall semester 2019. In addition, high-school GPA or 2-year college GPA (for transfers students) is available. From survey data: Retrospective self-reported baseline socio-demographic characteristics (including number of family members they live with by age brackets; 2019 household income; country of birth; and first-generation college student status) and pre-pandemic employment status including part- or full-time status, and essential worker status.	From CUNY student-level educational administrative data: <u>Socio-demographic characteristics:</u> gender, age, race/ethnicity, citizenship, zip code, residency type, Pell grant receipt, full-time/part-time status, transfer student indicator, major, seniority in college, college major, CUNY college(s) attended, first admission data, degree, degree completed term. In addition, we also have the following <u>academic information:</u> each term and cumulative GPA, credits earned and credits taken since enrollment at CUNY up to fall semester 2019. In addition, high-school GPA or 2-year college GPA (for transfers students) is available. We also have <u>CER program participation data</u> including eligibility and participant indicators, wave indicators, as well as several indicators allowing us to identify treatment and control students in each of the three waves (including an undocumented student indicator). From survey data: Retrospective self-reported baseline socio-demographic characteristics and pre-pandemic health and employment status.	Students’ perceptions of their community’s challenges regarding mobility, housing, racial/ethnic disparities/discrimination, food security, and social safety networks.

Post-Pandemic Information	<p>From CUNY student-level educational administrative data: <u>Covering from spring semester 2020 to summer term 2022 (or earlier if they graduate, transfer out of CUNY or drop out of CUNY: cumulative and each semester GPA, credits taken and earned, as well as date of graduation, degree and major. In addition, we also know Pell grant receipt, full-time/part-time status, and major (we can identify those who changed majors).</u></p> <p>From survey data: Self-reported wellbeing, financial situation and employment status (including job loss information); Employment expectations after graduation; Self-reported services and financial assistance received due to COVID-19, and use of aid— includes Federal CARES act assistance as well as CER grant; Questions on trust, anxiety, and financial, housing and food insecurity. <i>See pilot survey instrument #3.</i></p>	<p>From CUNY student-level educational administrative data: <u>Covering from spring semester 2020 to summer term 2022 (or earlier if they graduate, transfer out of CUNY or drop out of CUNY: cumulative and each semester GPA, credits taken and earned, as well as date of graduation, degree and major. In addition, we also know Pell grant receipt, full-time/part-time status, and major (we can identify those who changed majors).</u></p> <p>From survey data: Self-reported wellbeing, financial situation and employment status (including job loss information); Employment expectations after graduation; Self-reported services and financial assistance received due to COVID-19, and use of aid— includes Federal CARES act assistance as well as CER grant; Questions on trust, anxiety, financial, housing and food insecurity. <i>See pilot survey instrument #3.</i></p>	Same as pre-pandemic information
Targeted Population	A representative sample of 30,000 CUNY students	CER eligible student population: (1) Undocumented undergraduate and graduate students; and (2) undergraduate students within 12 credits of earning a degree, and having an EFC of zero on their federal financial aid application (FAFSA) or being a parent with any EFC.	A representative group of CUNY students from different socio-economic backgrounds, races/ethnicities, majors and years of graduation
Expected Sample Sizes	6,000 students per survey (based on a 20 percent response rate).	Eligible population: 19,168 students. Treatment group: 6,000 students. Control group: 13,168 qualified students who applied and did not get the CER grant.	Pre-pandemic: 80 students Post-pandemic: 120 students

Note: ^a Pre-COVID-19 in-depth group workshops have already been conducted.

Table 5. Three-Prong Approach to Address Internal-Validity Threats Using Survey Data

<p><i>Targeted Communication Plan to Maximize Representativeness of Survey Respondents</i></p> <p>Using our pilot surveys (described in Section 4.4), we will first identify those demographic groups who have lower response rates, and to increase survey participation and completion among those hard-to-reach demographic groups, we will utilize a targeted communication plan as explained in Appendix Table A.1, which addresses the proposal’s risk assessment. The objective is to obtain a sample of survey respondents that is representative of the CER grant program eligible population.</p>
<p><i>Control for Baseline Proxies of Ability, Grit and Academic Commitment</i></p> <p>We will use pre-pandemic administrative academic information (including cumulative GPA and credits earned) as proxies of students’ ability, grit and academic commitment to include as covariates in the regression analysis. While this will not eliminate the bias, to the extent that cumulative GPA and credits earned are correlated with both students’ outcomes and their decision to respond the survey, controlling for them will reduce the bias and provide an indication of the direction of the survey non-response bias.</p>
<p><i>Propensity Score Matching so Treated and Control Groups Have Balanced Baseline Characteristics</i></p> <p>We will explore the use of baseline cumulative GPA and credits earned as well as socio-demographic characteristics and propensity score matching to obtain a group of treated and control students who responded to the survey and was balanced in terms of these baseline characteristics.</p>

TABLE 6. Queens College Chancellor’s Emergency Relief Fund, Spring 2020 Academic Outcomes

<i>OUTCOMES</i>	<i>Control population means</i>	No controls (1)	Sex & age controls (2)	Race & ethnicity (3)	ESL & NY residence (4)	Pre-QC GPA (5)
<i>Spring 2020 semester</i>						
Spring 2020 GPA	3.362 [0.860]	+0.199*** (0.05)	+0.175*** (0.05)	+0.181*** (0.05)	+0.185*** (0.05)	+0.178*** (0.05)
Spring 2020 credits taken	10.957 [4.556]	+0.649** (0.25)	+0.557* (0.23)	+0.525* (0.23)	+0.509* (0.23)	+0.507* (0.23)
Spring 2020 credits earned	10.306 [4.671]	+0.897*** (0.26)	+0.766** (0.24)	+0.739** (0.24)	+0.704** (0.24)	0.694** (0.24)
Spring 2020 credits dropped (credits taken – credits earned)	+0.650 [1.873]	-0.247* (0.11)	-0.209 (0.11)	-0.214 (0.11)	-0.196 (0.11)	-0.187 (0.11)
<i>COVARIATES</i>						
Sex and age controls			X	X	X	X
Race and ethnicity controls				X	X	X
ESL student, International student, NY state residence status, and transfer student controls					X	X
Pre-QC GPA						X

Notes: Robust standard deviation in brackets. The table reports estimates of treatment effects on the dependent variables indicated in row headings. Robust standard errors are reported in parentheses. Standard errors are clustered at the individual level. All specifications include wave dummies, an indicator for being undocumented or low-income student indicator, and such indicators interacted with the waves indicator as randomization was done within waves and by undocumented or low-income student status. Sample sizes are C=2,433 students and T= 427 students.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.