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ABSTRACT

Food insecurity is widespread among college students nationwide and is negatively associated with their academic success, yet little is known about whether nutrition assistance programs can improve student outcomes. We examine the impact of sustained Supplemental Nutrition Assistance Program (SNAP) participation on early academic success among California community college students. We use linked administrative data from all 116 California community colleges, FAFSA records, and monthly SNAP participation data from 2014-2018. Using propensity score weighting, we compare outcomes for SNAP-eligible students who participated throughout their first year with observably similar eligible students who did not participate or participated for just a few months. We focus on first-time, full-time students who had participated in SNAP in the year before entering college. Among those students, sustained receipt of SNAP benefits during the Spring term increases the probability of earning 30+ credits in Year 1 by 1.4 percentage points and persistence to Year 2 by 2.6 percentage points. Results are robust across alternative estimators and treatment definitions. While SNAP is not designed as an academic intervention, its low fiscal cost makes it highly cost-effective relative to traditional student success programs. Our findings suggest that minimizing benefit interruptions and reducing administrative barriers for eligible students may complement other strategies to improve community college completion.

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INTRODUCTION

Food insecurity is widespread among college students and can interfere with their education. Nearly half of all community college students report experiencing food insecurity, with rates especially high among Black, Hispanic or Latino, and first-generation students (Brohawn et al., 2025; Goldrick-Rab et al., 2015, 2019; Nazmi et al., 2019). Experimental evidence suggests that when basic needs, such as food or shelter, are unmet, the resulting stress and cognitive burden can impair focus and decision-making (Mani et al., 2013; Schilbach et al., 2016). Consistent with this mechanism, observational research finds that food-insecure students tend to have lower grades, slower credit accumulation, and worse mental health (Broton & Goldrick-Rab, 2016; Maroto et al., 2015; Martinez et al., 2018).

Nutrition assistance programs, such as the Supplemental Nutrition Assistance Program or SNAP, can potentially improve college student success by alleviating food insecurity. In K-12 settings, access to nutrition assistance has been linked to better health, academic, and career outcomes later in life (Hoynes et al., 2016; Evans et al., 2024; Lundborg et al., 2022). However, evidence on the effects of nutrition assistance in higher education is more limited and mixed. Small-scale correlational studies have found that programs connecting students to benefits or providing emergency aid can improve persistence and credit accumulation (Anderson, 2021; Daugherty et al., 2020; Duke-Benfield & Saunders, 2017; Balzer Carr and London, 2020; Broton et al., 2023), though other evaluations report null or even negative effects (Blagg et al., 2020; Daugherty et al., 2025; Voorhees and Ortagus, 2025). Existing studies are often limited by small institutional samples, reliance on self-reported data, imprecise measures of program eligibility, or low program take-up, all of which complicate the interpretation of results.

Understanding the effect of SNAP benefits on students is important, as student eligibility for the program is a live policy issue. Under federal law, students enrolled more than half-time are presumptively ineligible, even if they meet all of the regular eligibility requirements, unless they qualify for one of a list of designated exemptions (e.g., for participants in employment-oriented programs, for student parents, and for those receiving work study support).[1] One interpretation of the exemption requirement is that it serves to exclude from benefits many students with low current income but access to family support, who arguably do not need benefits. But there is ongoing concern that this requirement both increases the administrative burden for students and serves to

[1] H.R. 1 (the One Big Beautiful Bill Act of 2025) made these exemptions more restrictive.

exclude students who need support, while also potentially allowing some students to access benefits who may not really need them. The exemption requirement was substantially yet temporarily loosened during the COVID-19 pandemic, and states have some discretion over how to define exemptions.[2] States and colleges have also worked to facilitate student enrollment through student-focused outreach efforts aimed at increasing student awareness and reducing administrative burdens (Brohawn et al., 2025; Daugherty et al., 2025).

But is this expanded eligibility and outreach in the broader public interest? Much depends on the impacts of participation on student outcomes – while alleviating food insecurity is an important goal on its own, evidence of effects on students' ability to focus on their studies would strengthen the case for expanding eligibility and investing in student-focused outreach.

This study offers a novel contribution to this question based on a rich, linked administrative dataset that combines student records from all 116 California community colleges with FAFSA financial aid applications and SNAP participation data, with a quasi-experimental identification strategy that takes advantage of the richness of our data. California is a particularly important setting, given that its community college system is both the largest and one of the most diverse in the United States. By precisely identifying SNAP eligibility using financial and household information (Rothstein et al., 2024), we provide a more accurate assessment of the relationship between food assistance and student success than previously available in the literature.

The data for this study includes all first-time, full-time California Community College students who entered college between Fall 2014 and Fall 2018. We define consistent participation as receiving SNAP benefits during at least five months between January and June of the first academic year in college.[3] Importantly, we are able to draw on rich information about student financial and demographic characteristics to construct samples of participants and non-participants who are otherwise closely comparable. We limit our analytic sample to students who (a) appear to be eligible for SNAP at college entry, based on their household and income characteristics, and (b) have a history of SNAP participation prior to college entry. These restrictions eliminate much of the

[2] California's governor recently vetoed a bill, SB 761, that would have allowed all full-time students at California public institutions to qualify for exemptions. The bill would also have added new notifications to apparently eligible students, aimed at increasing take-up. States have a financial interest in increasing student receipt of SNAP benefits, as the cost of benefits is paid by the federal government.

[3] Most students will already have been enrolled for 3-4 months by the beginning of this period. Focusing on Spring participation avoids mismeasurement of the status of students who remain on their parents' cases in the first few months of college but then are removed.

potential for selection into SNAP participation. Within this sample, participation is solely determined by the plausibly ignorable decision to apply for benefits – which, given limited information about the program, may reflect receipt of outreach efforts as much as perceived need. Within this sample, we estimate the effects of consistent SNAP participation using a propensity score weighting approach that compares students who received benefits consistently to similar eligible students who did not receive benefits or who received them for only a short time, adjusting for over 50 baseline characteristics.[4] We examine impacts on two academic outcomes that are plausibly affected by food insecurity in the first year of college: completion of 30 or more semester credits in the first year, and persistence to the second academic year.

We find that consistent SNAP participation during college is associated with improvements in student academic outcomes. Consistently participating students, who received benefits for an average of 11.4 months in their first year of college, were 1.4 percentage points more likely to complete at least 30 credits and 2.4 percentage points more likely to remain enrolled for a second year than were observably similar eligible students who either did not participate or participated for a shorter period (averaging just 4.4 months over the August-July period, mostly in the first portion when many students were still on their parents' cases). Our preferred estimates come from an augmented inverse propensity weighting (AIPW) estimator, and the results are robust to alternative definitions of treatment (e.g., four- or six-month thresholds) and to alternative estimators such as entropy weighting.

These findings suggest that continued SNAP access during college may support academic progress, particularly for students who were already connected to the program before enrollment.[5] There are several plausible mechanisms that could generate this result: Students receiving SNAP benefits may be able to work less at paid jobs, freeing up time for school, or may simply experience reduced food insecurity that reduces the cognitive burden and stress associated with poverty (Mullainathan and Shafir, 2013). In either case, our results indicate that SNAP benefits help students to succeed academically. While effects are small in absolute terms, the cost of SNAP benefits is also much

[4] The most similar existing studies, Blagg et al. (2020) and Voorhees and Ortagus (2025) also use propensity score strategies to study effects of SNAP receipt, but with less granular measures of SNAP participation (i.e., just a single annual indicator) and far more limited covariates. Neither can observe key eligibility or take-up factors like student exemptions or prior SNAP receipt. In our data, prior receipt is correlated with outcomes even conditional on all our baseline characteristics, so controlling for it is essential to avoiding selection bias.

[5] We find that very few students who did not participate in SNAP prior to college wind up participating in their first year of college, even when eligible. This suggests potential for increasing take-up through better outreach but prevents us from estimating the effects of participation in this population.

lower than other interventions that have been found to be successful in supporting student success (e.g., the ASAP tutoring and student support intervention, see Weiss et al., 2019), and the SNAP intervention is cost-effective relative to those other programs.

This study contributes to the policy literature in several ways. First, it provides new evidence on the relationship between nutrition assistance and college success, using precise eligibility measures and a quasi-experimental approach that improves on prior studies. Second, the findings have practical implications for efforts to support college completion among low-income students. Ensuring continuous access to SNAP for already-enrolled participants may be a promising policy lever. Reducing administrative burdens and improving communication during the transition to college could help eligible students maintain benefits when support is most needed. Third, the results underscore the value of sustained benefit access and can inform the design of future experimental evaluations aimed at increasing SNAP take-up during college.

The remainder of the paper is structured as follows. Section II provides background and summarizes the relevant literature. Section III describes the data, sample, and measures. Section IV outlines the methodological approach. Section V presents the results. Section VI discusses the findings and implications for policy.

BACKGROUND

SNAP Eligibility and Access for College Students

The Supplemental Nutrition Assistance Program (SNAP), known as CalFresh in California, is the largest food assistance program in the United States. It provides monthly benefits to low-income individuals and families to help them afford groceries, and plays a critical role in reducing food insecurity. A large body of research has found that SNAP improves food access and supports better health, education, and labor market outcomes, particularly among children and families (Bartfeld et al., 2015; Hoynes et al., 2016; Gray et al., 2023). Although not originally designed for college students, SNAP has the potential to alleviate food insecurity among this group as well, which may in turn support their academic success.

However, eligibility for SNAP is complex for college students. Under federal rules established in the late 1970s, students enrolled at least half-time in higher education are ineligible for SNAP unless they meet certain exemptions, even if they meet the regular SNAP eligibility criteria. Student

exemptions include working 20 or more hours per week, participating in work-study, caring for a dependent child, being a foster child, or being enrolled in specific workforce training programs. These restrictions were introduced to prevent students from middle- and upper-income families from using public benefits while attending college, when many such students have low current incomes but are not materially deprived. However, they may also present a barrier for low-income students who often balance coursework, jobs, and caregiving responsibilities. Some students who qualify for exemptions may have trouble documenting their qualification, creating both real obstacles to eligibility and administrative barriers that may dissuade participation.

In previous work, we have used the administrative data used here to measure eligibility and take-up of SNAP benefits by California community college students (Rothstein et al., 2024). We used information from administrative records and student financial aid applications (FAFSAs) to proxy for the different components of SNAP eligibility determination (citizenship, income, household composition, and student exemptions). We estimated that 20% of California community college students are eligible for benefits, but that only about one-in-four of them actually receive the benefits for which they are eligible. This gap suggests that many students who could benefit from nutrition assistance do not receive it, despite recent efforts by states and colleges to increase access.

Food Insecurity, SNAP, and College Student Success

Community college students are more likely to come from low-income families than four-year college students, and many are non-traditional, with children and substantial work experience (Velez et al., 2018; Irwin et al., 2023). Few California community colleges operate dormitories, and students are about evenly divided between living in their parents' homes or in off-campus apartments (Rothstein et al., 2024, p. 16). Further, budgets for institutional financial aid are far from adequate to meet student needs, so while tuition is low (and often covered by Pell Grants or a state scholarship program, the Cal Grant), little aid is available to support students' living expenses.

Perhaps as a consequence, food insecurity is common among community college students and may interfere with their ability to succeed in school. National survey data show that between 42 and 56 percent of community college students experienced food insecurity each year between 2015 and 2020; in California, about half of community college students reported low or very low food security in 2019 (Goldrick-Rab et al., 2019). Food insecurity is higher among Black, Hispanic or Latino, and first-generation students (Brohawn et al., 2025; Goldrick-Rab et al., 2015; Nazmi et al., 2019).

Food insecurity can contribute to poorer physical and mental health, worse academic performance, and lower persistence and completion rates (Broton & Goldrick-Rab, 2016; Maroto et al., 2015; Martinez et al., 2018). Evidence from K-12 settings shows that access to SNAP benefits and school-based meal programs leads to better academic achievement, higher school attendance, and long-run educational attainment for younger children (Hoynes et al., 2016; Evans et al., 2024; Lundborg et al., 2022).

A growing number of studies have begun to examine the role of SNAP and related supports in promoting academic success in college, though often without credible causal designs. These studies suggest that access to nutrition assistance may help students stay enrolled, complete credits, and earn degrees. For example, a small-scale correlational study by Anderson (2021) found that emergency aid recipients at a four-year college were more likely to receive college credentials. Daugherty et al. (2020) and Duke-Benfield and Saunders (2017) evaluated programs that connected students to public benefits and other supports. Both found positive impacts on persistence and credit completion at community colleges. However, they relied on self-reported data and imprecise measures of program eligibility, limiting generalizability. Similarly, Balzer Carr and London (2020) found that SNAP participation was linked to higher retention at a four-year institution, although their study was limited to students in a basic needs support program and did not include a formal comparison group. One notable exception with a credible causal design is Broton et al. (2023), who found positive effects of a campus meal voucher program on credit completion and graduation in a randomized experiment, though results from a single community college limit generalizability, and the campus program lacked SNAP's complex eligibility rules and administrative barriers. Other research has produced less encouraging results. Blagg et al. (2020) used administrative data from Virginia community colleges and found no short-term effects of food benefit receipt on persistence, though the study relied on limited proxy measures of SNAP eligibility. Daugherty et al. (2025) also found null results from a randomized evaluation of a benefits navigator intervention, though the very low take-up means that the study could not distinguish large effects of benefits from zero. Using national survey data, Voorhees and Ortagus (2025) found that SNAP receipt was associated with worse academic outcomes in college, though their study relies on self-reported participation data, cannot measure eligibility, benefit duration or intensity, and has limited overlap between SNAP participants and non-participants.

These mixed findings underscore the need for larger-scale studies with precise measures of eligibility and participation and stronger causal designs. Most existing research relies on small

samples, self-reported data, or lacks adequate comparison groups, making it difficult to draw clear conclusions about the effects of SNAP in college settings.

This study builds on prior work by focusing on a large and diverse population of students across California community colleges. It also uses administrative data to measure both eligibility and participation more precisely, and to control directly and indirectly for an unusually rich set of student observable characteristics.

DATA AND MEASURES

Data sources and linkage

This analysis uses a longitudinal administrative dataset constructed through a partnership between the California Policy Lab (CPL) and multiple California state agencies. Student-level records were linked across three sources: (1) the California Community Colleges Chancellor's Office (CCCCO), which provided data on student enrollment, demographics, and academic outcomes for all students enrolled at the state's 116 community colleges; (2) the California Student Aid Commission (CSAC), which provided FAFSA application data, including income, household size, and dependency status, for all California FAFSA-filers; and (3) the California Department of Social Services (CDSS), which provided monthly records of individual SNAP participation.

These records were merged at the individual level using privacy-preserving record linkage techniques based on hashed identifiers, resulting in a longitudinal panel covering student enrollment and benefit receipt from 2014 to 2019 (Rothstein et al., 2024). The linked dataset includes 840,521 first-time, full-time community college students, of whom 541,970 (64%) submitted FAFSAs. It enables precise identification of which students were likely eligible for SNAP and which actually participated, along with detailed student characteristics that can be used to limit potential confounding.

Study sample

Community college students represent a highly diverse population. Some are recent high school graduates planning to transfer to four-year institutions, while others are mid-career adults taking a small number of courses for job advancement or personal development. We focus on first-time, full-time CCC students aged 18 to 49 who enrolled in their first semester between Fall 2014 and Fall

2018.[6] Within this group, we examine two key subpopulations for whom the outcome measures are most relevant: students under age 21 (i.e., recent high school graduates) and students who reported at entry that their goal was to obtain a degree or to transfer to a four-year institution.[7]

We aim to measure the causal effect of consistent SNAP participation by comparing students who receive SNAP benefits for most or all of the academic year to otherwise similar students who do not receive benefits or receive them only for a portion of the year. Our first step to ensuring comparability is to limit the sample to students who appear, based on the calculations in Rothstein et al. (2024) and the detailed household and income information in our data, to be eligible for SNAP benefits. A total of 70,598 students (13% of FAFSA filers) met the eligibility criteria.[8] By restricting our analysis to this group, we ensure that comparisons are only among students for whom SNAP was a realistic option, and thus that our treatment and comparison groups are substantially similar. Among eligible students, variation in participation comes from student knowledge of the program, decisions to apply, and ability to successfully navigate a complex process. While these could be correlated with students' potential academic outcomes, we are able to control for a rich set of individual characteristics.

Within the sample of apparently SNAP-eligible students, we can distinguish those who had received SNAP benefits in the year before college entry, typically as part of their parents' households, and those who had not. Only 6% of students in the latter group receive benefits during their first year of college, suggesting substantial room to increase take-up . Because students who received benefits before college differ in observable and likely in unobservable ways from those who did not, and because there are so few SNAP participants in the latter group, we further restrict our sample to students who had received benefits prior to beginning college. This results in an analytic sample of 29,046 students. Focusing on this subgroup improves the overlap between consistent participants and non- or sporadic participants with similar characteristics.

[6] First-time, full-time students are a minority of community college students: most students attend part-time, and many have previously attended college. However, this group is central to policy efforts aimed at increasing degree completion and transfer rates.

[7] Other students enroll in community college in order to obtain a vocational certificate; we do not count these students as degree-seeking.

[8] Rothstein et al. (2024) estimate that 18% of first-year community college students are eligible for benefits, though that is computed over a broader sample (including part-time and certificate-seeking students) than the one we use here.

Treatment definition

Our SNAP participation data is monthly, and students move in and out of the program throughout the academic year. In particular, many students remain on their parents' SNAP cases for the first few months of college before leaving those cases, either for their own independent cases (as is required when they are no longer living in their parents' homes) or for non-receipt of benefits. A student who receives benefits just for the first month or two of the school year is not meaningfully treated, as we would not expect this to have much effect on their food security through the year. As we show in the Appendix Figure A1, most students have moved off of their parents' cases by January, so Spring participation better captures ongoing benefits. We thus focus on participation during the Spring term (January to June) as indicative of the student's status after the transition to college.[9]

We explore several definitions of "treatment" meant to capture ongoing benefit receipt. Our primary definition considers a student treated if they receive benefits for at least five of the six months of the Spring term. In practice, students satisfying this definition mostly received benefits for the entire year – on average, they received 11.4 months of benefits in the 12-month August-July period. We also consider alternative definitions based on 4+ or 6 months of Spring semester participation. These thresholds allow us to examine whether our results are robust to reasonable variations in how sustained SNAP participation is defined.

Outcome measures

We examine two key academic outcomes: (1) credit accumulation in the first year (measured as completion of at least 30 semester credits within the first academic year, which indicates a student is on track for two-year completion requiring 60 total credits) and (2) persistence to the second year (measured as enrollment in college in the academic year following the first year, indicating the student continued their studies). These are both important markers of student academic success in the first year and are important to the student's ability to eventually achieve the degree goal. Both might be impacted by SNAP participation if students are forced to work long hours in order to afford food, or if the cognitive load of poverty prevents them from focusing adequately on schoolwork.

[9] Some California community colleges use the quarter system. There, our definition corresponds to the Winter and Spring quarters.

METHODS

Students who participate consistently in SNAP differ from those who do not, even within our sample of students who were eligible and who had participated previously. This raises the concern that differences in outcomes may reflect those preexisting differences, rather than the effect of the program. Fortunately, we have extremely rich administrative data that contain a great deal of information about students in a range of domains, including demographic, geographic, family structure, family finances, and pre-college SNAP participation (see Table A1 in the Appendix for the full list). We first use these data to simulate SNAP eligibility, and exclude students who are not eligible in their first year or who did not participate in the year before college. This eliminates the largest observed differences between consistent participants and our comparison group. Next, we use propensity score weighting to adjust the non- and sporadic participants to closely resemble consistent participants on all observables, augmented with regression adjustment in a doubly-robust estimator (see, e.g., Funk et al. 2011). Under a selection-on-observables assumption, plausible here due to our unusually rich covariates, this enables us to identify the effect of SNAP participation on those who receive benefits (i.e., the average treatment effect on the treated, or ATT).

We use the following notation:

- X_i represents baseline characteristics for student *i*, including financial information from the FAFSA submitted prior to enrollment.
- Y_i is the student outcome measure.
- T_i is an indicator for participation in SNAP.
- $Y_i(0)$ and $Y_i(1)$ are the (only partially observed) potential outcomes that the student would obtain if they were untreated (if they didn't participate in SNAP) and if they were treated (if they participated), respectively.

The key assumption of the propensity score analyses is unconfoundedness (also known as conditional independence): T_i is uncorrelated with potential outcomes $Y_i(0)$ and $Y_i(1)$ conditional on observed characteristics X_i. This does not mean that T_i is uncorrelated with the observed outcome Y_i, as that is the main relationship of interest, but that *in the absence of treatment* the treated students would have had similar average outcomes to those of observably similar untreated students. While this assumption is untestable, our ability to balance an extensive set of over 50 covariates aims to minimize the likelihood of selection bias. The list of covariates is presented in Table A1 in the Appendix; in addition to standard demographics (age, gender, race, marital status), it also includes

measures of student and parent income, type of SNAP student exemption, educational goals, and financial aid eligibility.

We first estimate a propensity score $p_i = p(X_i)$ based on a logistic regression of T_i on the observable characteristics X_i; p_i is the predicted probability from this regression. Under the propensity score theorem (Rosenbaum and Rubin 1983), if treatment is unconfounded conditional on all of the variables in X_i, then it is unconfounded conditional just on the single variable p_i.

Next, we use propensity scores p_i to form weights for the comparison observations:

$$w_i = p_i / (1-p_i). \quad (1)$$

(For treated observations, $w_i = 1$.) With these weights, the weighted comparison sample has approximately the same distribution of p_i as the treated sample. We trim observations from both the treatment and comparison groups with very low (below 0.05) or very high (above 0.95) estimated propensity scores to ensure sufficient overlap between treatment and comparison groups.

Finally, we estimate weighted regression models of the outcome Y_i on treatment status T_i. The use of inverse propensity weights ensures that T_i is uncorrelated with p_i in the weighted sample, reducing the possibility for omitted variable bias. This permits a simple treatment effect estimator:

$$Y_i = \boldsymbol{\alpha} + \boldsymbol{\delta} T_i + \boldsymbol{\beta} X_i + \boldsymbol{\varepsilon}_i, \quad (2)$$

where Y_i is the outcome measure; T_i is the treatment status, indicating whether the student participated consistently in SNAP according to our definition; and $\boldsymbol{\varepsilon}_i$ is a random error term. The regression is weighted by w_i, ensuring that X_i is uncorrelated with T_i. Under the unconfoundedness assumption stated above, the inclusion of controls for X_i is unnecessary. However, the inclusion of the X_i control, in what is known as an Augmented Inverse Propensity Weighting (AIPW), makes the $\boldsymbol{\delta}$ estimator doubly robust (Funk et al. 2011), unbiased if either that unconfoundedness assumption holds or if the potential outcome $Y_i(0)$ is linear in X_i. In robustness analyses, we also present results from a traditional Inverse Propensity Weighting (IPW) estimator that omits the X_i control from (2), as well as with an entropy balancing estimator (Hainmueller, 2012) that directly balances X_i rather than using the two-step procedure of estimating the propensity score and then using it to construct weights.

Table 1 presents summary statistics for our sample. Column 1 reports the full sample, while columns 2 and 3 report the treatment and comparison subsamples, using our preferred treatment definition of 5+ months of SNAP participation in the Spring term. We see notable differences between the

groups: treated students are older, and more likely to be female, Black, and married. They also have lower incomes and are less likely to be enrolled in degree programs. Column 4 presents statistics for the comparison group after weighting. This eliminates or at least drastically reduces all of the differences with the treatment group, supporting the validity of the comparison.

As discussed above, there is variation within both our treatment and comparison groups in the number of months of SNAP benefits received. The treatment group, on average, received benefits for 11.4 months in the August-July academic year. The comparison group, however, received benefits for only 3.2 months on average, or 4.4 months after reweighting. There is thus a dramatic dosage difference between the groups. It is the effect of this dosage difference that our propensity score analysis identifies.

Table 1. Descriptives for Comparison and Treatment Groups (5+ months SNAP Participation).

	All	Consistent SNAP participants (treatment group)	Not consistent SNAP participants (comparison group)	Comparison group, reweighted
N	29,046	12,100	16,946	15,504
Age	22.9	24.8	21.5	24.7
Female	63.9%	67.7%	61.2%	67.3%
Black	12.5%	15.6%	10.2%	16.2%
Pell recipient	84.5%	83.9%	84.9%	83.9%
Married	9.5%	11.3%	8.3%	11.1%
First-generation student	31.5%	31.4%	31.5%	31.7%
Net monthly income	$688.6	$576.2	$768.9	$563.1
Income eligible	100%	100%	100%	100%
Has exemption	100%	100%	100%	100%
Under 21	67.0%	54.3%	76.1%	54.8%
Degree-seeking	60.5%	57.6%	62.5%	57.4%
Months of SNAP, 1st year	6.6	11.4	3.2	4.4
Months of SNAP, Aug-Dec	3.8	5.6	2.5	3.5
Months of SNAP, Jan-Jul	2.8	5.8	0.7	0.9

Note: The reweighted comparisons column only includes observations with propensity scores between 0.05 and 0.95

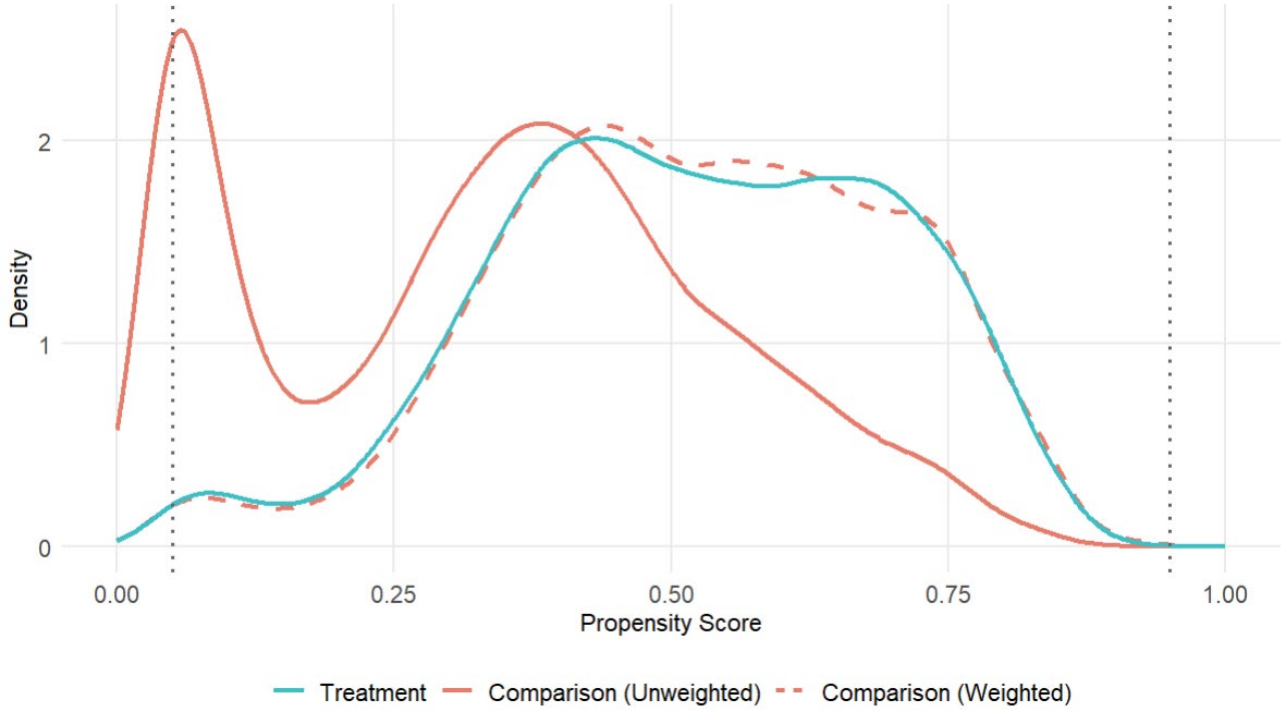
Table 2 shows mean outcomes for our treatment and comparison groups, without reweighting. Less than one-third of students earn credits consistent with a full year of academic progress, while close to two-thirds persist to their second year. Both outcomes are slightly better among students not consistently participating in SNAP than among those who participate consistently. But this may reflect the differences in observables differences seen in columns 2 and 3 of Table 1. Our AIPW estimator will adjust for these.

Table 2. Mean Outcomes for Treatment and Comparison Groups (5+ Months of SNAP Participation)

	Treatment	Comparison
Earn 30+ credit units in first year	29.5%	30.6%
Enrollment in Year 2	62.9%	65.7%

Figure 1 plots the distribution of propensity scores by treatment status. Not surprisingly, the distribution of propensity scores is higher for treated than for untreated students, with a substantial mass of untreated students whose characteristics indicate that they are very unlikely to be treated. These would not be valid comparisons for the treated students, and are substantially downweighted by the propensity score weighting. Despite this group, there are many non-participating students whose characteristics indicate very high probabilities of participating – that is, the region of common support is large. The figure also shows the distribution of propensity scores in the comparison group after reweighting (dashed line) – this is much more similar to that in the treatment group. Propensity score overlap plots for the under-21 sample and the degree-seeking sample are presented in the Appendix (Figures A2 and A3)

Figure 1. Propensity Score Overlap by Treatment Status (Full Sample, 5+ months SNAP Participation)



Note: vertical grey dotted lines correspond to 0.05 and 0.95 propensity score trimming cutoffs.

A final analysis aims to assess the success of the propensity score reweighting at balancing observables. To do this, we test for treatment-comparison differences in the prognostic score, the predicted outcome given the observables X. Because the variables in X are all pre-determined and our estimator is designed to balance them, we should see no difference in the mean of any function of X between the treatment group and the adjusted comparison group. Differences in the particular function that is the prognostic score – the best linear predictor of the outcome Y given the observables X – would be particularly worrisome, as they translate directly into bias in the IPW estimates due to selection on observables. (Note, however, that the AIPW estimator adjusts directly for any difference in observables, so would not be biased by differences in the prognostic score.)

We estimate prognostic scores by fitting logit models for each of our two outcomes, then generating the predicted probabilities. As reported in the Appendix Table A2, for the 30+ credits outcome, the mean prognostic scores are 0.283 for treated students and 0.280 for reweighted comparisons, a difference of 0.003 (SE = 0.003); the fitted slopes from regressions of the prognostic score on the propensity score are -0.197 and -0.213, a difference of 0.016 (SE = 0.017). For year 2 enrollment, the corresponding means are 0.678 and 0.674 (difference 0.004, SE = 0.003), with slopes -0.430 and -0.486, a difference of 0.056 (SE = 0.036). Appendix Figure A4 shows binscatters of the prognostic

scores against the propensity score, separately for our treated sample and the reweighted comparison sample. We see here that the propensity to receive benefits is weakly negatively correlated with predicted outcomes, but this correlation is similar for the two samples. The relationship is nonlinear, with particularly low predicted outcomes for students with propensity scores around 0.1, but again this does not differ between the treatment and comparison groups. Overall, our assessment is that the propensity score reweighting successfully balances observable characteristics between groups.

RESULTS

Table 3 presents our estimates of the effect of consistent SNAP participation on key academic outcomes – credit accumulation in Panel A, and persistence to the second year in Panel B. In each panel, we present three sets of estimates: Simple comparisons without controls, regression-adjusted estimates obtained from fitting equation (1) without reweighting, and our preferred AIPW estimates. In the raw comparisons consistent SNAP participants are less likely to accumulate 30 credits or to persist to the second year than are the comparison students (as seen in Table 2). However, the effect turns positive when we control for observables, and grows further in our AIPW estimates. Students who received SNAP for five or more months in the Spring term were approximately 1.4 percentage points more likely to earn 30 or more credits in their first year and about 2.4 percentage points more likely to enroll in their second year, relative to matched peers with similar baseline characteristics. Both differences are statistically significant.

Column 2 presents results for traditional-aged college students, those who are under 21 at the beginning of college. Estimated SNAP effects are smaller here and not statistically significant, but remain positive. Column 3 presents results for degree-seeking students. Effects are larger here. Consistent SNAP recipients were significantly more likely to earn 30 or more credits in their first year (by approximately 1.8 percentage points) and to re-enroll in the second year (by approximately 2.5 percentage points), compared to similar peers who did not receive benefits or received them more sporadically.

Table 3. Propensity score estimates of consistent SNAP participation in the first year on student outcomes (5+ months SNAP participation in Spring term)

	Full Sample	Under 21	Degree seeking
Panel A: Earn 30+ credit units in first year			
Simple Difference	-0.0110	-0.0104	-0.0071
	(0.0055)	(0.0071)	(0.0072)
Regression adjusted	0.0110	0.0070	0.0158
	(0.0060)	(0.0074)	(0.0079)
AIPW (for ATT)	0.0142	0.0094	0.0179
	(0.0062)	(0.0071)	(0.0084)
	Full Sample	Under 21	Degree seeking
Panel B: Enrollment in Year 2			
Simple Difference	-0.0282	-0.0173	-0.0237
	(0.0057)	(0.0071)	(0.0073)
Regression adjusted	0.0162	0.0078	0.0146
	(0.0062)	(0.0075)	(0.0079)
AIPW (for ATT)	0.0258	0.0125	0.0253
	(0.007)	(0.0079)	(0.0093)

Notes: Standard errors in parentheses. AIPW estimates use clustered bootstrap standard errors (1,000 replications); regression-adjusted estimates use robust SEs. Observations with propensity scores below 0.05 or above 0.95 are excluded.

Robustness

We have conducted a number of additional analyses meant to ensure that these results are robust. Table 4 presents analyses, parallel to those in Table 3, that use alternative estimators – first an inverse propensity weighting (IPW) estimator without regression augmentation (i.e., equation (2) omitting the X control) and then an entropy balancing estimator (Hainmueller 2012). These yield similar results to our preferred AIPW estimates. Entropy-weighted estimates tend to be a bit smaller, however, and in the degree-seeking sample they are not statistically significant.

Table 4. Alternative propensity score estimates of SNAP Spring participation in the first year on student outcomes (5+ months SNAP participation in Spring term)

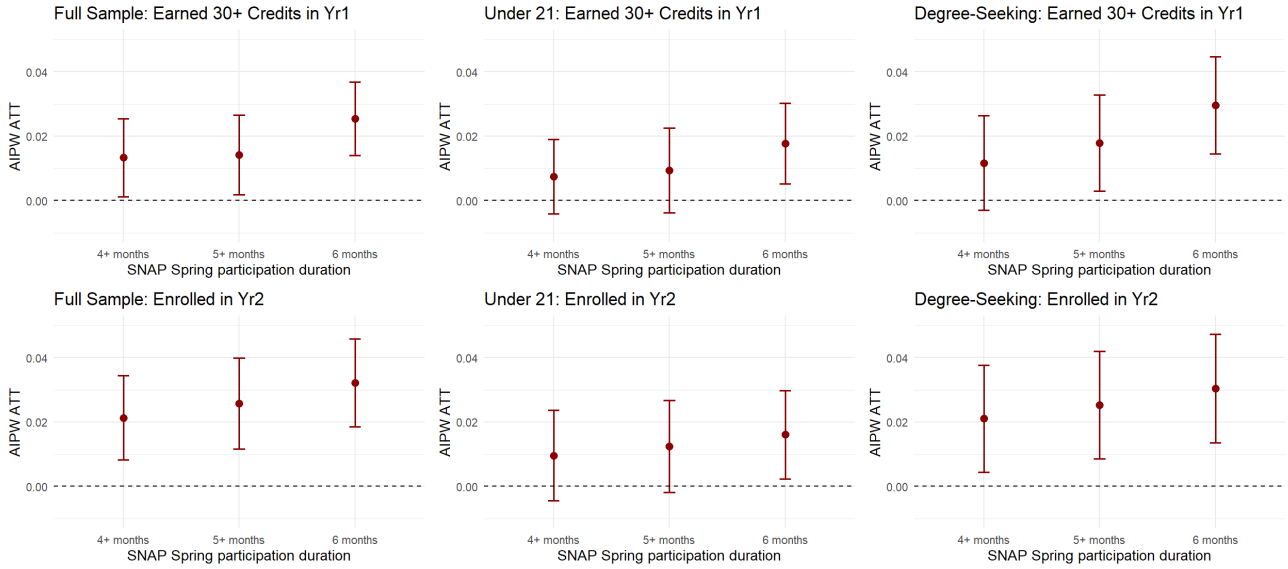
	Full Sample	Under 21	Degree seeking
Panel A: Earn 30+ credit units in first year			
IPW (for ATT)	0.0146	0.0115	0.0191
	(0.0063)	(0.0074)	(0.0087)
Entropy Weighted	0.0123	0.0068	0.0127
	(0.0063)	(0.0075)	(0.0081)
	Full Sample	Under 21	Degree seeking
Panel B: Enrollment in Year 2			
IPW (for ATT)	0.0268	0.0155	0.0273
	(0.0072)	(0.0083)	(0.0098)
Entropy Weighted	0.0199	0.0094	0.0157
	(0.0069)	(0.0077)	(0.0085)

Notes: Standard errors in parentheses. IPW estimates use clustered bootstrap standard errors (1,000 replications); entropy-weighted estimates use robust SEs. Observations with propensity scores below 0.05 or above 0.95 are excluded.

Another dimension that we have explored is the definition of treatment. In the analyses above, treatment corresponds to receipt of at least five months of SNAP benefits between January and June of the student's first academic year of college. Students who receive benefits for less than five months in this period are included in the comparison group. We have also estimated our models using alternative definitions: at least four months of participation and at least six months of participation over the same period. These cutoffs isolate students with similarly sustained patterns of benefit receipt while modestly expanding or contracting the treatment group.

For each definition, we compute AIPW estimates for both outcomes and for each of the three analytic subsamples. As shown in Figure 2, the estimated effects remain positive across all thresholds. In the full sample, the 4-, 5-, and 6-month definitions all yield substantively similar and statistically significant effects. In the under-21 sample, the 4- and 5-month thresholds produce positive but statistically insignificant estimates, while the 6-month definition produces effects that are both larger in magnitude and statistically significant. Among degree-seeking students, all estimates are positive, with only the 4-month estimate for 30+ credits not statistically significant. Overall, these patterns indicate that our main findings are robust to reasonable alternative definitions of sustained SNAP participation.

Figure 2. Robustness of treatment effects to alternative treatment definitions



Notes: Points show AIPW estimates and bars show 95% confidence intervals. Estimates use clustered bootstrap standard errors (1,000 replications). Treatment is defined using alternative thresholds of 4+, 5+, or 6 months of SNAP receipt during the Spring term. Observations with propensity scores below 0.05 or above 0.95 are excluded.

DISCUSSION

This study provides new evidence on the academic impacts of nutrition assistance for community college students. Using linked administrative data from California's community college system, we find that sustained SNAP participation during the first year of college meaningfully improves early academic outcomes. Among SNAP-eligible first-time, full-time students who had previously participated in the program, maintaining benefits for at least five months during the Spring of the first year increased the probability of earning 30 or more credits in Year 1 by 1.4 percentage points and the probability of persisting to Year 2 by 2.6 percentage points. These effects are robust across alternative estimators and across alternative treatment definitions.

To place these effect sizes in context, in our sample approximately 30 percent of students earn 30+ credits, and 64 percent persist to the second year. Our estimates of SNAP effects therefore represent roughly a 5 percent increase in credit accumulation and a 4 percent increase in persistence relative to these baselines. The consistency of positive effects across both outcomes strengthens confidence in the findings, as both credit accumulation and persistence represent important markers of academic progress that respond to improved food security. While these effects may appear modest in absolute

terms, they are substantively meaningful for students whose academic trajectories are often precarious. Moreover, these gains are generated by a program not designed as an academic intervention, suggesting that addressing basic needs represents an important complement to traditional student support services.

These findings are consistent with theory suggesting that unmet basic needs create cognitive burdens that impair focus and decision-making (Mani et al., 2013; Schilbach et al., 2016). Our data do not allow us to directly observe the mechanisms through which SNAP affects academic outcomes, but several pathways are plausible. SNAP benefits may reduce the need for students to work excessive hours to afford food, freeing time for studying. The program may alleviate stress and anxiety associated with food insecurity, improving students' capacity to concentrate on coursework. It may also reduce harmful trade-offs between purchasing food and other necessities, or between eating adequately and remaining enrolled. Without data on work hours, health, or time use, we cannot definitively identify which mechanisms are operative, though all are theoretically plausible and may operate simultaneously.

This study contributes to the limited body of literature on the academic impacts of basic needs programs in higher education by addressing key measurement and identification challenges that have complicated prior work. While Duke-Benfield and Saunders (2017) and Daugherty et al. (2020) found positive effects of programs connecting students to benefits, both relied on self-reported participation data; we use monthly administrative records of SNAP receipt. Compared to Blagg et al. (2020), who used proxy measures to infer SNAP eligibility, or Voorhees and Ortagus (2025), who lacked eligibility measures and used self-reported SNAP participation, we derive eligibility directly from FAFSA data combined with detailed SNAP rules, and measure participation using monthly administrative records. Unlike small-scale studies at single institutions (Anderson, 2021; Balzer Carr & London, 2020; Broton et al., 2023), our analysis covers nearly 30,000 students across all California community colleges. Finally, while Daugherty et al. (2025) employed experimental variation, very low take-up prevented detection of participation effects; our observational approach with propensity score weighting that balances treatment and comparison groups on over 50 characteristics allows us to estimate effects for students who received sustained benefits. These features provide some of the strongest available evidence on the relationship between basic needs support and academic success in higher education.

At the same time, there are important limitations. First, the analysis relies on the assumption that all relevant confounders (factors influencing both SNAP participation and student outcomes) are observed and included in the model. Unmeasured characteristics such as student motivation, access to informal support, or stress levels may bias the estimates despite statistical adjustments. Second, the study estimates the average treatment effect on the treated (ATT), meaning findings apply only to students who received SNAP before college and continued receiving it during college. They may not generalize to similar students who did not continue participation or to the broader population of potentially eligible students.

Cost-effectiveness

One way to interpret the magnitude of the effects that we find is to compare the implied cost-effectiveness of SNAP benefits as a means of improving student academic outcomes to other programs. It is important to emphasize that academic progress is not the only possible benefit of SNAP, so cost effectiveness in this dimension understates the value of the program; nevertheless, it is useful for comparisons.

We estimate the fiscal cost of extended SNAP participation using the same accounting framework as Weiss et al. (2019). They evaluate CUNY's Accelerated Study in Associate Programs (ASAP), which is widely recognized as one of the most effective interventions for improving community college completion. Their approach calculates the public cost per additional degree by dividing total program costs by the estimated increase in completion. We follow this structure, with the important difference that SNAP is a means-tested transfer program, not a student support service. This distinction matters. SNAP dollars go directly to households and generate benefits well beyond schooling outcomes, including improved food security, reduced material hardship, and higher monthly consumption. Our goal here is therefore not to evaluate whether SNAP "pays for itself" but to place its academic impacts in a common cost-effectiveness metric.

California community college students participating in SNAP prior to the pandemic received, on average, $123 per month in benefits (Perez et al., 2025). In our setting, treated students receive approximately seven additional months of benefits relative to the comparison group. The implied incremental fiscal cost is therefore about $860 per student.[10] Our 1.4 percentage-point increase in

[10] This does not account for costs of administering the SNAP program.

earning 30+ college-level credits implies one additional 30+-credit completer for every 71 students participating in SNAP. Dividing $860 by 0.014 yields a cost of roughly $61,000 per additional 30+-credit completer. Similarly, our 2.6 percentage-point increase in second-year persistence implies one additional second-year persister for every 40 treated students. Dividing $860 by 0.025 yields an implied cost of about $33,000 per additional second-year persister.

Our study focuses only on short-run outcomes, as longer-run outcomes (e.g., degree completion) depend on receipt of benefits not only in the first year of college but thereafter. However, we can translate our persistence effects into implied additional completions using systemwide evidence from California Community Colleges (Moore et al., 2009). Among degree-seeking students, 58 percent return for the second year and 28.6 percent ultimately complete a certificate, degree, or transfer pathway. This relationship implies a completion rate of approximately 49 percent among second-year persisters. Applying this conditional relationship to our 2.6 percentage-point increase in second-year enrollment yields an expected 1.3 percentage-point increase in eventual completion. This calculation is best viewed as a ballpark figure. It relies on a stable mapping from persistence to completion and does not adjust for differences in student composition. We use it only to provide a direct comparison with ASAP, which reports cost per additional degree using the same denominator.

Weiss et al. estimate that ASAP raised completion by 18 percentage points at a cost of roughly $14,000 per student per year, generating a cost of approximately $78,000 per additional degree. Using our estimated completion effect and the $860 incremental SNAP cost, the implied cost per additional completer in our setting is roughly $66,000. On a purely mechanical basis, these figures suggest that SNAP is slightly more cost-effective. However, the two programs differ substantially in purpose and design. ASAP is an intensive, structured student success model, while SNAP is a basic-needs transfer that delivers significant non-academic benefits. For this reason, the apparent cost advantage of SNAP should be interpreted with caution and not as evidence that SNAP substitutes for or replicates the effects of comprehensive student support programs.

Several limitations are worth mentioning. First, our completion projection derives from a lifecycle relationship in administrative data rather than observed long-run outcomes. Second, SNAP benefits generate substantial non-academic value that is not captured in our metric, making the comparison asymmetric. Third, ASAP's estimate reflects a large, well-targeted, multi-site intervention; our effect is local to SNAP-eligible students. Finally, neither calculation incorporates externalities or long-run earnings effects.

Taken together, these comparisons suggest that while SNAP is not designed as a student success program, its low fiscal cost and measurable effects on academic persistence make it a surprisingly cost-effective intervention for improving educational attainment among community college students.

Policy implications

These findings have several implications for college administrators, state policymakers, and researchers working to improve community college completion.

First, sustained SNAP access during college appears beneficial for students already participating in the program, suggesting real value in minimizing benefit interruptions. Students who were receiving SNAP before college and maintain those benefits achieve better academic outcomes than observably similar students who lose access or participate sporadically during their first year of college. Colleges and states should therefore prioritize strategies that help eligible students maintain continuous enrollment in SNAP rather than allowing benefits to lapse during the transition to college or during recertification periods.

Second, reducing administrative burden and improving communication during the college transition may be particularly important. Students may not realize they need to update their SNAP case when they start college, may be unaware of student exemptions that make them eligible, or may face paperwork requirements that cause their benefits to lapse. Concrete steps might include providing clear information about SNAP eligibility during college orientation, offering on-campus application assistance (which is already expanding at many community colleges), coordinating recertification deadlines with academic calendars, and simplifying verification processes. If colleges can help eligible students maintain benefits when support is most needed, including during their first year of studies, the evidence suggests this will support their academic success.

Third, it is important to note that our findings apply to students who already had SNAP before college and focus on the benefits of maintaining participation. We do not have strong evidence on the effects of increasing take-up among students who were not previously enrolled but became eligible during college; as noted above, these students were very unlikely to participate in SNAP during our study period. This suggests that outreach efforts during our period of study were not effectively reaching this population. Since then, the California Community Colleges have stepped up their outreach programs, so take-up among eligible students who had not previously participated may be higher now (Rothstein et al., 2024).

Finally, these findings strengthen the broader case for integrating basic-needs support into efforts to improve academic progress for low-income community college students. Higher education policy has traditionally focused on academic support services, such as advising and tutoring. Those interventions remain important. But this research suggests that addressing students' basic needs is also part of supporting student success. Given SNAP's low incremental cost and the program's substantial non-academic benefits, facilitating access for eligible students represents a cost-effective complement to traditional student success programs. As colleges and states work to improve completion rates, reducing barriers to safety net program participation deserves a place alongside investments in academic support services.

References

1. Alaimo, K., Olson, C. M., & Frongillo Jr, E. A. (2001). Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development. *Pediatrics*, *108*(1), 44-53.
2. Anderson D. (2021). Edquity grantees cross the finish line at Compton College. Evaluation brief.
3. Balzer Carr, B., & London, R. A. (2020). Healthy, housed, and well-fed: Exploring basic needs support programming in the context of university student success. *AERA Open*, 6(4).
4. Bartfeld, J., Gundersen, C., Smeeding, T., & Ziliak, J. P. (Eds.). (2015). *SNAP matters: how food stamps affect health and well-being*. Stanford University Press.
5. Blagg, K., Rainer, M., & Washington, K. (2020). Understanding SNAP Take-Up and Short-Term Community College Outcomes in Virginia. Research Report. *Urban Institute*.
6. Brohawn, K., Gilkerson, T., & Nguyen, A. (2025) Real College California: Basic Needs Among California Community College Students in 2025. *Community College League of California.*
7. Broton, K., & Goldrick-Rab, S. (2016). The dark side of college (un) affordability: Food and housing insecurity in higher education. *Change: The Magazine of Higher Learning*, *48*(1), 16-25.
8. Broton, K. M., Mohebali, M., & Goldrick-Rab, S. (2023). Meal vouchers matter for academic attainment: A community college field experiment. *Educational Researcher*, *52*(3), 155-163.
9. Daugherty, L., Johnston, W. R., & Tsai, T. (2016). Connecting college students to alternative sources of support. *The Single Stop Community College Initiative and Postsecondary Outcomes*.
10. Daugherty, L., Johnston, W. R., & Berglund, T. (2020). Connecting College Students to Alternative Sources of Support: The Single Stop Community College Initiative and Postsecondary Outcomes. RAND Corporation.
11. Daugherty, L., Kramer, J. W., Mariano, L. T., Cady, C., Gomez-Bendaña, H., Berglund, T., Ryan, S., Bongard, M., Eagan, J., & Doss, C. J. (2025). *Connecting students to basic needs support: An evaluation of Single Stop across ten colleges*. RAND Corporation.
12. Duke-Benfield, A. E., & Saunders, E. K. (2017). Benefits access for college completion: Lessons learned from a community college initiative to help low income students.

13. Evans, R. W., Maguet, Z. P., Stratford, G. M., Biggs, A. M., Goates, M. C., Novilla, M. L. B., ... & Barnes, M. D. (2024). Investigating the poverty-reducing effects of SNAP on non-nutritional family outcomes: a scoping review. *Maternal and Child Health Journal*, *28*(3), 438-469.
14. Funk MJ, Westreich D, Wiesen C, Stürmer T, Brookhart MA, Davidian M. Doubly robust estimation of causal effects. Am J Epidemiol. 2011 Apr 1;173(7):761-7.
15. Goldrick-Rab, S., Broton, K., & Eisenberg, D. (2015). Hungry to learn: Addressing food and housing insecurity among undergraduates. Wisconsin Hope Lab, 1-25.
16. Goldrick-Rab, S., Baker-Smith, C., Coca, V., Looker, E., & Williams, T. (2019, April). *College and university basic needs insecurity: A national #RealCollege survey report*. The Hope Center for College, Community, and Justice.
17. Gray, C., Leive, A., Prager, E., Pukelis, K., & Zaki, M. (2023). Employed in a SNAP? The impact of work requirements on program participation and labor supply. *American Economic Journal: Economic Policy*, *15*(1), 306-341.
18. Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political analysis*, *20*(1), 25-46.
19. Hoynes, H., Schanzenbach, D. W., & Almond, D. (2016). Long-run impacts of childhood access to the safety net. *American Economic Review*, *106*(4), 903-934.
20. Irwin, V., Wang, K., Tezil, T., Zhang, J., Filbey, A., Jung, J., Bullock Mann, F., Dilig, R., and Parker, S. (2023). Report on the Condition of Education 2023 (NCES 2023-144rev). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2023144rev.
21. Jyoti, D. F., Frongillo, E. A., & Jones, S. J. (2005). Food insecurity affects school children's academic performance, weight gain, and social skills–. *The Journal of nutrition*, *135*(12), 2831-2839.
22. Lundborg, P., Rooth, D. O., & Alex-Petersen, J. (2022). Long-term effects of childhood nutrition: evidence from a school lunch reform. *The Review of Economic Studies*, *89*(2), 876-908.
23. Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. *Science*, *341*(6149), 976-980.

24. Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515-526.
25. Martinez, S. M., Webb, K., Frongillo, E. A., & Ritchie, L. D. (2018). Food insecurity in California's public university system: What are the risk factors?. *Journal of hunger & environmental nutrition*, *13*(1), 1-18.
26. Mullainathan, S., & Shafir, E. (2013). *Scarcity: Why having too little means so much*. Macmillan.
27. Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., ... & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725-740.
28. Rothstein, J., Lacoe, J., Ayers, S., Castellanos, K. P., Dizon-Ross, E., Doherty, A., ... & Weng, J. (2024). Filling the Gap: CalFresh Eligibility among University of California and California Community College Students. *California Policy Lab*.
29. Schilbach, F., Schofield, H., & Mullainathan, S. (2016). The psychological lives of the poor. *American Economic Review*, 106(5), 435-440.
30. Velez, E. D., Bentz, A., & Arbeit, C. A. (2018). Working Before, During, and after Beginning at a Public 2-Year Institution: Labor Market Experiences of Community College Students. Stats in Brief. NCES 2018-428. National Center for Education Statistics.
31. Voorhees, N., & Ortagus, J. C. (2025). National Evidence of the Relationship Between SNAP Receipt and College Students' Academic Outcomes. *The Journal of Higher Education*, 1-25.
32. Weiss, M. J., Ratledge, A., Sommo, C., & Gupta, H. (2019). Supporting community college students from start to degree completion: Long-term evidence from a randomized trial of CUNY's ASAP. *American Economic Journal: Applied Economics*, *11*(3), 253-297.

APPENDIX

Table A1. List of Propensity Score Covariates

N	Description
1	School Indicator
2	Age
3	Citizenship indicator
4	Female indicator
5	Race
6	Foster status indicator
7	Positive expected family contribution indicator
8	Missing positive expected family contribution indicator
9	Pell Grant recipient indicator
10	Cal Grant recipient indicator
11	Missing Cal Grant recipient indicator
12	Work Study indicator
13	Missing work study indicator
14	Any financial aid indicator
15	Missing student aid award amount
16	Dependent status (from FAFSA, or CCCCO data if missing)
17	Student household size
18	Indicator for missing student household size
19	Housing choice
20	Missing housing choice
21	Indicator for having a dependent
22	Married indicator
23	Missing married indicator
24	Number of past terms attended a CC (not as full-time)
25	Summer-only student
26	Highest education level before CC enrollment
27	Enrollment status
28	First generation student indicator
29	Single-parent indicator
30	Education goal: Transfer to a 4-year
31	Education goal: Complete AA
32	Education goal: Obtain a certificate
33	Education goal: Other
34	Monthly income quintile
35	Monthly net income
36	Work study eligibility indicator
37	Indicator for a student having positive assets
38	Missing indicator for a student having positive assets
39	Indicator for parents having positive assets
40	Missing indicator for parents having positive assets
41	Parent 1 education level

42	Missing parent 1 education level
43	Parent 2 education level
44	Missing parent 2 education level
45	Indicator for exemption: Cal Grant
46	Missing indicator for Cal Grant exemption
47	Indicator for exemption: Work study
48	Missing indicator for work study exemption
49	Indicator for exemption: Foster
50	Indicator for exemption: Other program
51	Indicator for exemption: Disability
52	Indicator for exemption: Extended opportunity programs
53	Indicator for exemption: Parent
54	CF participation at any point two years prior to full-time CC enrollment
55	CF participation at any point during the Summer of the year prior to full-time CC enrollment
56	CF participation at any point during the Spring of the year prior to full-time CC enrollment

Figure A1. Monthly SNAP Participation by Treatment Status

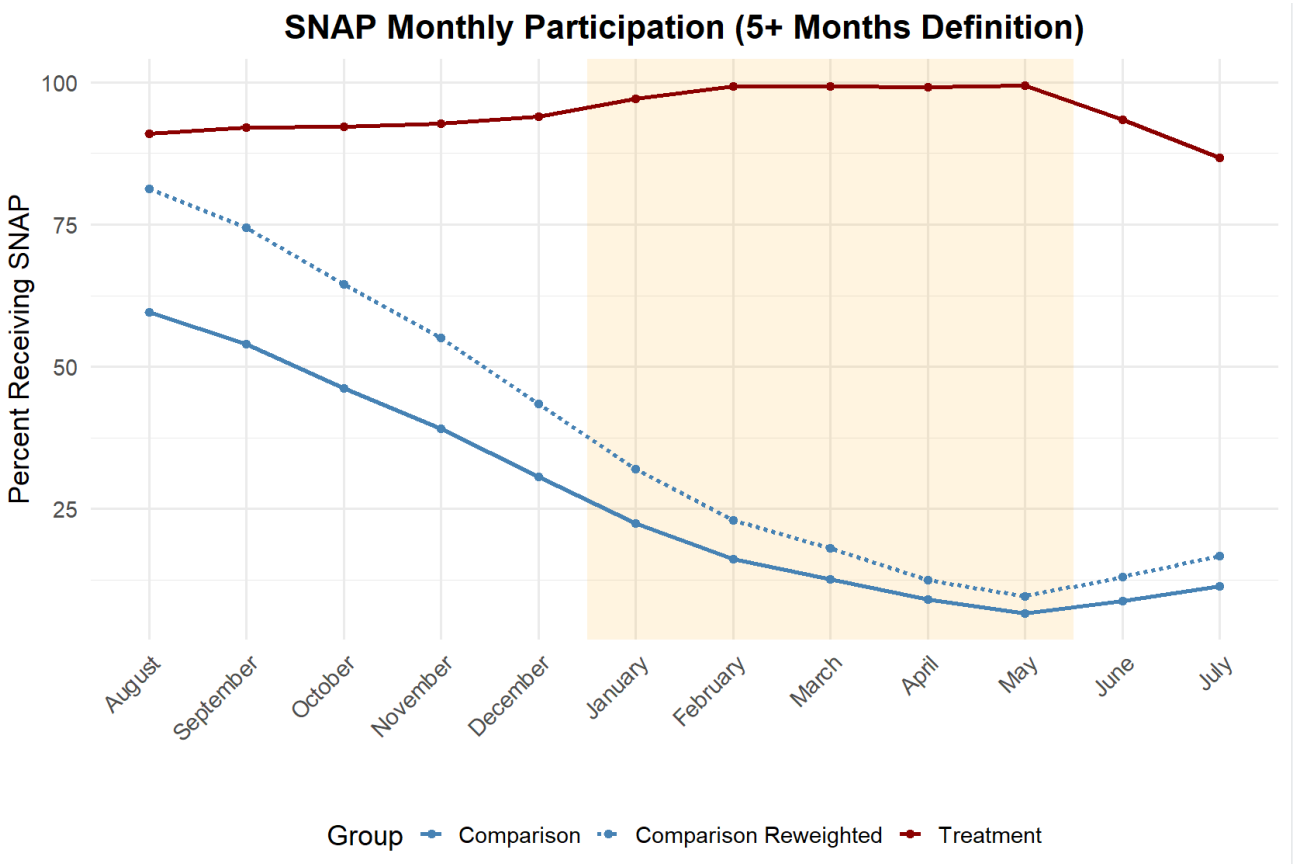


Figure A2. Propensity Score Overlap by Treatment Status (Under 21 sample, 5+ months SNAP Participation)

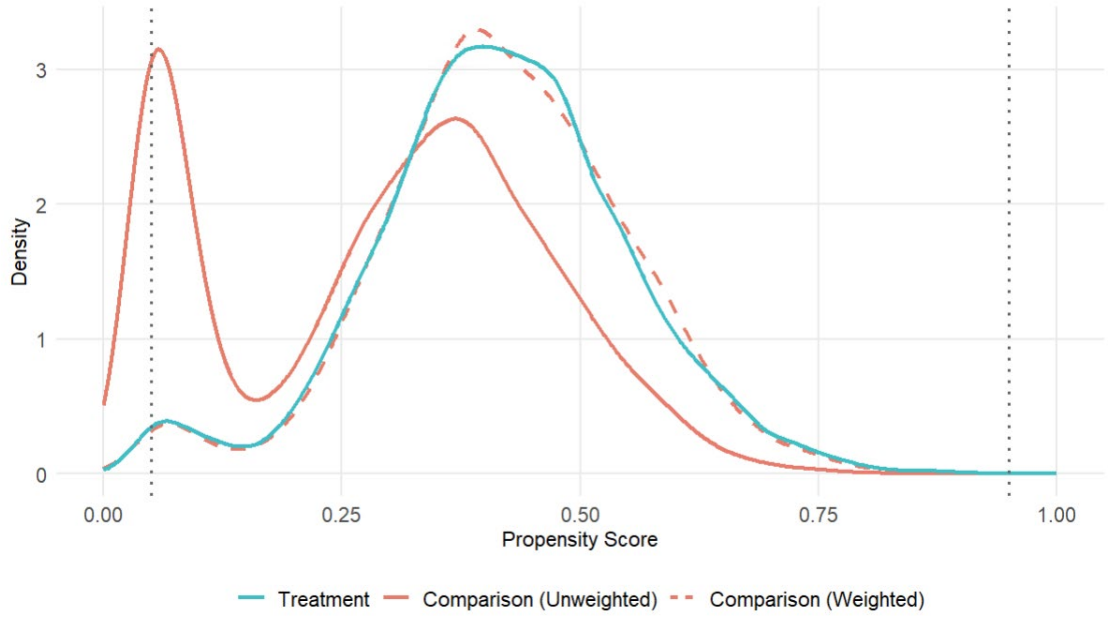


Figure A3. Propensity Score Overlap by Treatment Status (Degree-seeking sample, 5+ months SNAP Participation)

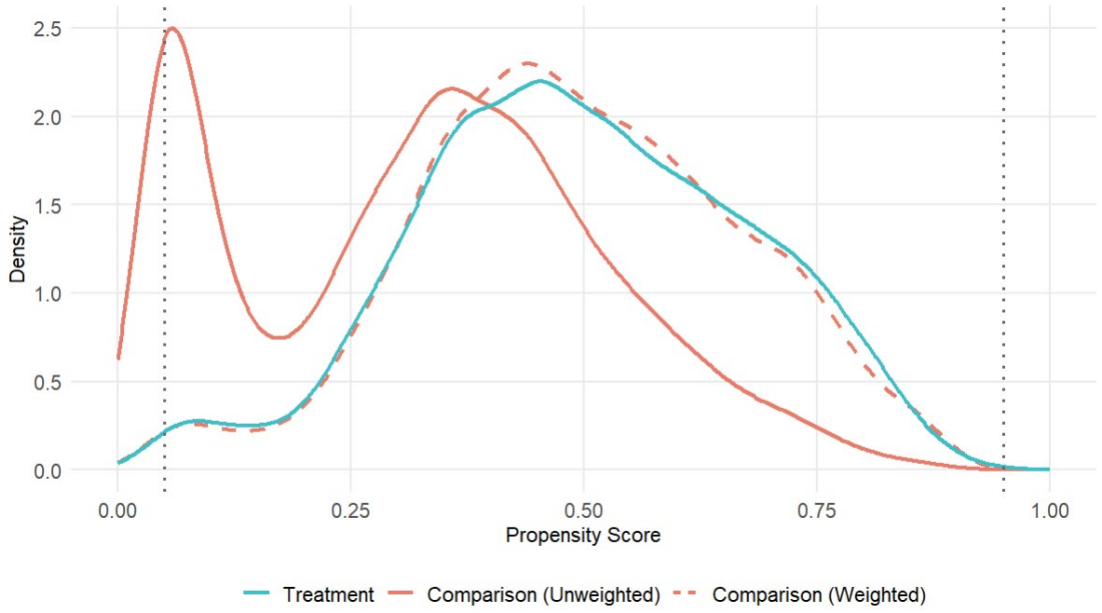


Figure A4. Prognostic Score vs. Propensity Score: Balance Diagnostics by Treatment Status (Left: 30+ Credits in Year 1; right: Year 2 Enrollment)

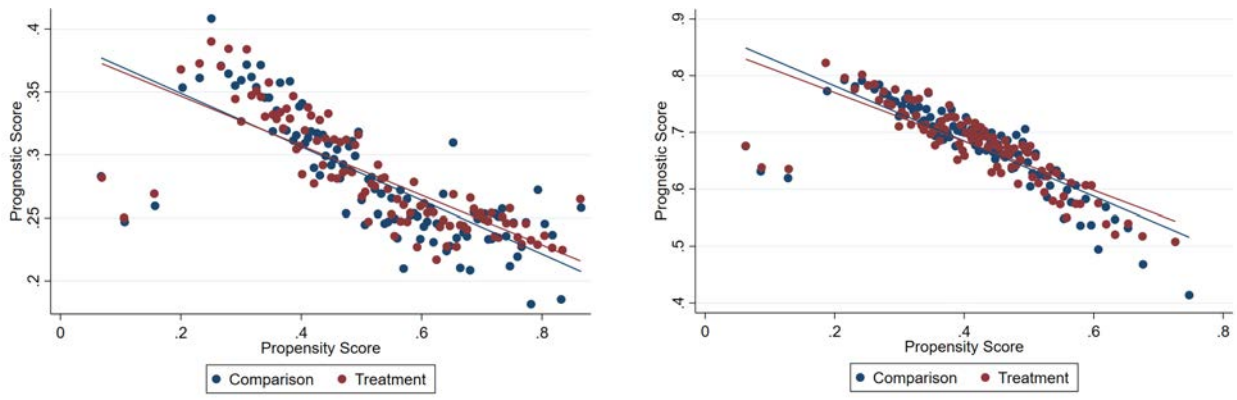


Table A2. Covariate Balance Diagnostics

	Full Sample	Under 21	Degree seeking
Panel A: Earn 30+ credit units in first year			
Mean Prognostic Score (Treated)	0.283 (0.002)	0.309 (0.003)	0.330 (0.003)
Mean Prognostic Score (Comparison, weighted)	0.280 (0.002)	0.304 (0.002)	0.326 (0.003)
Difference in Means	0.003 (0.003)	0.005 (0.004)	0.003 (0.005)
Slope of Prognostic vs. Propensity (Treated)	-0.197 (0.011)	-0.315 (0.022)	-0.288 (0.027)
Slope of Prognostic vs. Propensity (Comparison, weighted)	-0.213 (0.013)	-0.319 (0.020)	-0.320 (0.025)
Difference in Slopes	0.016 (0.017)	0.004 (0.030)	0.031 (0.037)
	Full Sample	Under 21	Degree seeking
Panel B: Enrollment in Year 2			
Mean Prognostic Score (Treated)	0.678 (0.003)	0.676 (0.003)	0.674 (0.003)
Mean Prognostic Score (Comparison, weighted)	0.674 (0.002)	0.674 (0.002)	0.670 (0.002)
Difference in Means	0.004 (0.004)	0.002 (0.004)	0.004 (0.004)
Slope of Prognostic vs. Propensity (Treated)	-0.430 (0.023)	-0.429 (0.023)	-0.421 (0.023)
Slope of Prognostic vs. Propensity (Comparison, weighted)	-0.486 (0.028)	-0.435 (0.022)	-0.461 (0.023)
Difference in Slopes	0.056 (0.036)	0.006 (0.032)	0.040 (0.033)

Notes: Robust standard errors are shown in parentheses. Comparison group means and slopes are estimated using ATT reweighting.