THE CENTURY FOUNDATION

Appendix A: Estimating the CalFresh Participation Rate among California College Students

OCTOBER 29, 2020 — PETER GRANVILLE

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Given the critical importance of food access to college completion among low-income students in California, it is valuable for policymakers and advocates to know how many college students receive CalFresh benefits and how many are likely eligible but are not receiving the benefits.

The Senate Bill 77 CalFresh Student Data Report, referred to here as the "SB 77 report," was commissioned by the 2019 higher education budget trailer bill and assesses the effectiveness of CalFresh in addressing student food insecurity at the public segments of higher education. Through consultation with the UC System, the CSU System, the CCC Chancellor's Office, and advocates, a work group organized by CDSS developed the report, which contains key data points about CalFresh student access:

- The annualized number of CalFresh recipients who utilized an exemption to the student rule: 127,360.

- The total instances of certain exemptions at each of the systems, such as work study and enrollment in local E&T programs: 416,471.

The report also provides the total number of Pell Grants held by students at the CCCs, CSU, and UC, which is 689,233, as a suggested upper bound for the CalFresh eligible student population. These numbers suggest a CalFresh participation rate roughly between 18 percent and 30 percent.

However, these numbers can fluctuate as data on more exemptions is integrated. Data on other exemptions in 7 CFR §273.5(b), such as the student-parent exemptions and the exemption for students working twenty-plus hours per week, could not be provided by the university systems and were not included in the report. In addition, the annualized number of CalFresh recipients who utilized an exemption to the student rule could not be disaggregated, including by sector.

This appendix seeks to leverage additional datasets to provide the fullest-possible picture of CalFresh student access, while acknowledging that further research and data-sharing can further refine this picture. Because some assumptions must be made to create estimates in lieu of comprehensive data, this analysis should be treated not as definitive results, but rather as estimates. While the issue of food security among graduate students is of equal importance, this appendix focuses on undergraduate students.

TABLE 1

NPSAS Estimates of California Undergraduates Subject to the Student Rule Who Qualify for Certain Exemptions			
Percent of in-state CA students who:	*CCCs*	*CSU and UC*	*Private IHES*
Work 20+ hours per week (not including work study)	48.3%	30.9%	42.2%
Have a work study job[5]	1.7%	In SB77 report	6.1%
Qualify for a parental exemption (see note below)	10.9%	2.7%	22.1%
Major in a CTE field	63.4%	54.0%	80.5%

All the data used in this analysis was collected prior to the COVID-19 pandemic, and therefore these results should be interpreted as estimates of the CalFresh participation rate prior to the pandemic.

How Many Undergraduate Students are Eligible for CalFresh? Supplementing SB 77 Exemption Data with NPSAS

The National Postsecondary Student Aid Survey (NPSAS) is a survey conducted by the U.S. Department of Education every four years[1] on a nationally representative sample of college students on a range of demographic, educational, and financial information.[2] While most states have samples in NPSAS that are too small for analysis, there are sufficiently many in-state California students in the NPSAS sample to allow for a rudimentary analysis.[3]

Certain variables in NPSAS can be used to derive estimates of California students who are eligible for CalFresh. While the other data in this appendix reflects 2017–18 or 2018–19, we use the NPSAS 2015–16 survey because it is the most recent available. Because only students enrolled at least half-time[4] and aged 18-49 are subject to the student rule, we filter for these variables when obtaining statistics through NPSAS.

These variables represent the best available approximations of the attributes that would affect a student's CalFresh

eligibility, but there are some important caveats to the values above.

- One drawback of NPSAS is that it does not allow users to filter by the U.S. state the respondent is attending college in; instead, we must filter by in-state students attending college in California. For the purpose of the overall analysis, the estimates for in-state students are treated as proxies for the estimates for all California students.

- SNAP requires that dependent children live in the same household for a parental exemption to apply; NPSAS does not ask about whether the student's dependent children live in the same household as them. This could result in a slight overestimate in the students who qualify for a parental exemption.

- NPSAS does not ask students whether they were approved for work study, which is the basis for California to approve students for the exemption based on work study. Instead, the NPSAS variable used above for the CCCs and private institutions tracks whether a student had a work study job in 2015–16. This suggests we are underestimating the number of students who would qualify for the work study exemption.

TABLE 2

Estimates of California Undergraduates Subject to the Student Rule Who Qualify for Certain Exemptions via NPSAS and SB 77 Report				
Percent of in-state CA students who:	*CCCs*	*CSU and UC*	*Private IHES*	*Source*
Work 20+ hours per week (not including work study)	48.3%	30.9%	42.2%	NPSAS
Have a work study job	1.7%	3.1%[6]	6.1%	NPSAS, SB77
Qualify for a parental exemption	10.9%	2.7%	22.1%	NPSAS
Major in a CTE field	63.4%	54.0%	80.5%	NPSAS
Receive a TANF-funded Cal Grant	0.0%	14.7%	4.2%	SB 77, CSAC
Are in an approved program to increase employability	5.3%	5.0%	Unknown (5% imputed)	SB 77
Have a disability that has been reported to the school	5.3%	0.6%	Unknown (5% imputed)	SB 77
Receive CalWORKs (not including TANF-funded Cal Grants)	0.9%	Unknown (5% imputed)	Unknown (5% imputed)	SB 77

- One factor in the exemption based on students' status as parents is whether or not they have access to adequate child care. We use the NPSAS variable "Institution offers on-campus child care" as a proxy, but SNAP officers would likely consider the availability of other adequate child care options as well. (We assume on-campus child care would be considered "adequate.") The absence of data on non-campus child care options likely leads to an overestimate of the number of students who qualify for a parental exemption.

- NPSAS tells us students' marital status, which is used to identify single parents. However, SNAP regulations define 'single parent' based on the number of parents or parental figures (e.g. stepparents) living in the child's SNAP household. The NPSAS variable on marital status is not a perfect proxy, since an unmarried parent to a child would not meet the 'single parent' definition for SNAP if the other parent is also living in the household, while the students would be counted as a 'single parent' using our NPSAS variables. (When using NPSAS we group "separated" with "single," which accounts for parents who no longer live in the same household, but the issue remains for non-married parents living together.)

There are also certain exemptions for which we lack any data or reasonable proxies, such as whether a student expects to not be enrolled next term and whether a student is unable to work due to a physical or mental issue.

A note on parental exemptions: The eligibility requirements for the three parental exemptions in the SNAP regulations involve a number of factors. Is the student single or married? Is the dependent child between the age of 0 and

TABLE 3

EEstimated Percentage of Undergraduates Who Are Subject to the Student Rule and Have at Least One Exemption, by Sector	
	Estimated Percentage Exempt
CCCs	59.8%
CSU and UC	48.1%
Private IHEs	63.1%

6, or between the ages of 6 and 12? Does the student have access to adequate child care? Is the student enrolled full-time, or less than full-time? NPSAS contains variables that either address these questions or provide decent proxies, but when values are set for all four variables, the sample size is reduced to such a degree that reliable estimates are no longer possible. To compensate, we separately find the distributions along these variables and, assuming statistical independence across these variables, we estimate the results. In reality, statistical independence probably does not hold, but given the limitations of the data, this methodology is the best available approach. Below, this appendix will provide figures from the national sample that do account for potential correlations among variables.

How many TANF-funded Cal Grants are there by sector?

The SB 77 report includes total TANF-funded Cal Grants in the UC and CSU for the 2018–19 year: 40,217 and 61,835, respectively. We know that only one CCC student received a TANF-funded Cal Grant in 2018–19, and we know that TANF-funded Cal Grants totaled 121,885 in 2018–19; it follows that 19,832 TANF-funded Cal Grants were received by students at private California institutions. As percentages of total 2018–19 undergraduates subject to the student rule, an estimated 14.7 percent of the undergraduates at the UC and CSU receive TANF-funded Cal Grants and 4.2 percent at the private institutions.

Pulling Together the Results

Combining the results above with the data provided by the SB 77 report enables the following tabulation of California students exempt from the SNAP student rule (See Table 2)

Of course, a student may fall into multiple of the categories above, such as working 20+ hours per week and being in an approved program to increase employability. We cannot sum up the percentages above to obtain the percentage of students who are exempt from the student rule. The best approach to obtain overall estimates is to treat these factors as statistically independent, i.e. making calculations as if a positive value for one attribute does not make a positive value for another attribute any more or less likely. Doing so results in the following estimates. (See Table 3)

A note on the CTE exemption: The NPSAS variable on CTE listed in Table 2 identifies students' major (or, if undeclared, intended major) from student records and interviews. NPSAS then compares this major to the U.S. Department of Education's Classification of Instructional Programs (CIP) to determine CTE status, although it is unclear how CTE status is derived from the CIP. According to the Association for Career and Technical Education, about 4 million postsecondary students took at least one CTE credit in 2013–14, which would be about 15 percent of all students, far from the percentages above 50 percent at each sector observed by NPSAS in Table 2.[7] Out of caution, it seems appropriate to exclude the CTE exemption from this analysis, and this is reflected in Table 3 and for the rest of the appendix that follows.

TABLE 4

NPSAS Estimates of Citizenship and Income Eligibility for In-State California Undergraduates Subject to the Student Rule	
	Percent of Students Who Are U.S. Citizens with Incomes under 200-Percent FPL
CCCs	58.2%
CSU and UC	52.8%
Private IHEs	59.2%
Source: NPSAS 2015–16	

Examining Other Eligibility Components

When assessing how many students are eligible to receive CalFresh benefits, the next step is to account for other factors that would limit eligibility, the most prominent of which are citizenship and the threshold for income.[8]

- Only U.S. citizens and eligible non-citizens may receive SNAP benefits, where "eligible noncitizens" refers to green card holders, asylees, refugees, trafficking victims, and other groups identified by federal law. (Undocumented students, who comprise a significant share of enrollment in California higher education and particularly in the CCCs, are not eligible.) The total number of students who would be counted as a citizen or an eligible non-citizen is not feasible using the available data. The best available proxy appears to be the NPSAS variable for U.S. citizenship, though it slightly underestimates actual SNAP-eligible students because eligible noncitizens are not included.

- Income eligibility for CalFresh is a function of poverty level: most households must have gross income below 200 percent of the federal poverty level. (Households must also meet a threshold for net income, i.e. income after certain deductions, but this is not measurable in NPSAS or any other available data source, so we ignore it in this analysis, recognizing that doing so will slightly overestimate

eligibility.) For this analysis we use a NPSAS variable called "Income as a percentage of poverty," which reflects 2014 income data provided by the student's FAFSA (or a simplified form used by the survey) compared to the federal poverty levels in 2014. While SNAP eligibility is only concerned with a student's current poverty level month-to-month, we use the NPSAS poverty level variable here, even though it is derived from retrospective FAFSA data that may reflect the student's circumstances before they started college. This is a reasonable proxy if we assume that a student's poverty level is roughly the same before they enroll and while they are enrolled: this assumption will not hold for every student, but it intends to account for the financial assistance students receive from family while enrolled.

Because these are only two variables, we account for any relationship between them.

Tables 3 and 4 enable us to estimate the percentages of students who are subject to the student rule, citizenship-eligible, income-eligible, and able to claim an exemption to the student rule. (Due to sample size limitations, we must treat these as statistically independent, as we have done previously in this analysis.)

Because NPSAS is a survey conducted on a sample and is not a census of a population, there is uncertainty to the percentages we've used in the analysis. For each of these

TABLE 5a

Estimates of the CalFresh-Eligible Student Population		
Sector	Estimated Percentage of Undergraduate Students Who Are Subject to Student Rule and Eligible to Participate in CalFresh	Estimated Total Using 2018–19 Enrollment Data
CCCs	34.8%	580,586
CSU and UC	25.4%	176,263
Private IHEs	37.3%	174,431

TABLE 5b

Lower and Upper Bounds of Estimates of the Student Population Subject to the Student Rule and CalFresh-Eligible			
Sector	Baseline Estimates	Maximizing Estimates	Minimizing Estimates
CCCs	580,586 (34.8%)	630,240 (39.2%)	530,928 (30.7%)
CSU and UC	176,263 (25.4%)	196,830 (28.8%)	155,963 (22.3%)
Private IHEs	176,431 (37.3%)	207,638 (45.0%)	145,014 (30.2%)

TABLE 5c

Estimates of the Student Population That Is Subject to the Student Rule and Is CalFresh-Eligible, When Treating NPSAS Variables as Correlated Using National Sample		
Sector	Baseline Estimates	Adjusted Estimates
CCCs	580,586 (34.8%)	685,935 (39.5%)
CSU and UC	176,263 (25.4%)	164,305 (26.5%)
Private IHEs	176,431 (37.3%)	155,502 (35.6%)

TABLE 5d

Estimates of the CalFresh-Eligible Student Population Using a Projection of California Out-of-State Students		
Sector	Baseline Estimates	Adjusted Estimates
CCCs	580,586 (34.8%)	553,616 (33.14%)
CSU and UC	176,263 (25.4%)	147,078 (21.17%)
Private IHEs	176,431 (37.3%)	162,303 (34.35%)

TABLE 6

Distribution of California Students Accessing CalFresh While Enrolled, by Sector and Level		
	Undergraduate	*Graduate*
Public IHEs	254,830 / 309,754 = 82.27%	15,040 / 309,754 = 4.86%
Private IHEs	31,132 / 309,754 = 10.05%	8,752 / 309,754 = 2.83%
Note: 309,754 is the total number of California students who received SNAP according to the ACS. Of those, 254,830 are public undergraduates, 31,132 are private undergraduates, and so on.		

percentages, NPSAS provides the bounds of a 95 percent confidence interval. To gauge the certainty of our results, I plugged in the set of values from the confidence intervals that would maximize our estimated percentage of eligible students, as well as the set of values that would minimize the percentage. These results answer the question, "In an extreme case where the sample statistics are far from the population statistics, how strongly could the results differ?" Table 5b shows how these bounds differ.

Two further checks on our results are possible. So far in this analysis, the limited sample size of California college students in NPSAS has required us to treat variables as statistically independent, meaning we assume having one exemption does not make a student more or less likely to have any other exemption. To test the reliability of this step, I used the full national NPSAS sample to model the results when we do treat variables as dependent, as seen in Table 5c. Although California's sample is too small to support this, the national sample is sufficiently large. When modeling the results using the national dataset, we can also differentiate between in-state and out-of-state students.

Also recall that we have had to use in-state California students as a proxy for the California student population overall. The national dataset allows us to test how strongly our variables differ for out-of-state (OOS) students compared to in-state students (IS): for each variable, we can derive an OOS-to-IS ratio and then multiply it to the California in-state student percentages. This provides a projection of the percentages for out-of-state students in California.[9] When we combine these estimates with the estimates for California in-state students that we have already collected, weighting the estimates relative to enrollment share, we obtain the results in Table 5d.

While the estimates in Table 5a come with some uncertainty, the adjustments that lead to the results in Tables 5b through 5d do not produce strongly different results. Because the results in Tables 5c and 5d fall within the bounds presented in Table 5b, we will use the results in Table 5b as the baselines, upper bounds, and lower bounds of the eligible population when estimating CalFresh participation rates.

How Many Students Receive CalFresh Benefits? Supplementing SB 77 Enrollment Data with Estimates from the ACS

The American Community Survey (ACS), conducted annually by the U.S. Census Bureau on a representative sample of the population, asks individuals about enrollment in college and asks households about their receipt of SNAP benefits. Because of California's size, state-level estimates of college students' receipt of SNAP benefits can be measured using the ACS with a comfortable degree of confidence. For this analysis, the ACS's public use microdata sample (PUMS) was used to obtain the necessary subgroup estimates. All estimates are produced using sampling weights, which are calculated by the Census Bureau to enable the best-possible population estimates based on sample statistics. Because the data does not distinguish between community colleges and public universities, they are grouped together for this analysis.

TABLE 7

Estimated Count of Students Accessing SNAP With a Student Exemption		
	Undergraduate	*Graduate*
Public IHEs	82.27% * 127,360 = 104,777	4.86% * 127,360 = 6,184
Private IHEs	10.05% * 127,360 = 12,800	2.83% * 127,360 = 3,599

TABLE 8

Estimates of the CalFresh Undergraduate Student Participation Rate			
Sector	*Baseline Estimate*	*Lower Bound*	*Upper Bound*
Public IHEs	13.8%	12.7&	15.3%
Private IHEs	7.26%	6.2%	8.3%
Note: The rows for CCCs and CSU & UC have been combined into the Public IHEs row, weighted by IPEDS enrollment.			

The estimated annualized total of California college students in households receiving SNAP according to the ACS is 309,754, well above the annualized total number of SNAP recipients using the student exemption provided by CDSS, 127,360. This difference likely emerges from differences in how the data define a SNAP recipient[10] and how they are summed to produce a total count of students.[11]

Because of these differences between these two data sources, we only use the ACS estimates here for the purpose of evaluating the distribution of the 127,360 students within the CalFresh student-recipient population.This helps us estimate an answer to the question, "Of the 127,360 students identified in the SB 77 report, how many are undergraduates, and what is the breakdown by sector?"

The ACS data supplements the SB 77 total by providing a breakdown by student level (undergraduate vs. graduate) and sector (public vs. private). If we assume that student level and sector are not meaningfully correlated with (1) living in a household that receives SNAP but not receiving the student exemption, or (2) living in a household containing multiple students who receive exemptions from the SNAP student rule, then we can estimate the following distribution of SNAP recipients who are college students (Table 6).

If we apply these percentages to the 127,360 total calculated by CDSS, then we obtain the following estimates of the number of annualized students by student level and sector (Table 7a).

As a share of total enrollment, the counts in Table 7a translate to the following (Table 7b).

Conclusion

When we combine the results from Tables 5b and 7, dividing the estimated number of students who receive CalFresh using a student exemption by the estimated number who are subject to the student rule and eligible to participate, we obtain our estimates for the CalFresh participation rate. This table focuses only on undergraduates, as estimating the eligible graduate student population is beyond the scope of this research. (See Table 8)

These low rates signal that the unique barriers related to the student rule separate at least 8 out of 10 eligible undergraduate students from the benefits to which they are entitled. Using our baseline estimates, we can estimate that about 650,000 undergraduates per year at the CCC, CSU, and UC are subject to the student rule, eligible for CalFresh, and not receiving benefits.

Notes

1 Starting in 2020, a complementary survey of administrative data is being released on a quadrennial basis, meaning there will be NPSAS releases on a biennial basis in the future, though the content of the administrative survey differs from the main NPSAS survey.

2 While NPSAS has a variable called "Food stamp benefit," it is not used in this analysis because it reflects SNAP participation in 2014. NPSAS respondents were surveyed in 2015–16 and may not have been enrolled in college in 2014. Similarly, NPSAS has a variable for TANF receipt, which functions as an exemption to the student rule, but it reflects TANF receipt in either 2013 or 2014, not necessarily while enrolled.

3 For the 2015–16 NPSAS survey, the weighted sample size of in-state California undergraduate students is 2,591.

4 Because students' enrollment intensity can fluctuate over the course of an academic year, NPSAS provides variables for monthly enrollment status, as well as an "enrollment pattern" variable that summarizes the student's enrollment in terms like "enrolled mostly full-time" and "enrolled mostly part-time." We are interested here about whether the student was enrolled at least half-time. The "enrollment pattern" variable does not speak to whether a student was enrolled at least half-time, so we use an arbitrarily-selected monthly enrollment status month (October

2015) to determine what percentage of undergraduate students are enrolled at least half-time. We filter out those who say they were not enrolled at all in October 2015.

5 In California, eligibility for the work-study exemption is determined based on whether a student is approved for work study, not necessarily whether a student is employed in a work-study job. The SB 77 data report provides the number of students approved for work study at the CSU and UC, but it does not provide this for the CCCs (or private institutions). NPSAS provides a variable on whether a student held a work study job in 2015—16. Though it is an underestimate of qualifying students on the basis of approval, we used this variable for students at the CCCs and private institutions

6 Due to differences in data availability, the SB 77 report provided total UC students who were approved for work study and total CSU students who were placed in work study jobs.

7 According to NCES, there were about 27 million postsecondary students at degree-granting institutions in the 2013–14 year.

8 Asset eligibility, also referred to as a "resource" threshold, is also in federal regulations. However, California does not apply this resource threshold.

9 For simplicity, we do not do the same for foreign/international students, of whom only an especially small share would qualify for CalFresh.

10 The ACS tracks whether SNAP benefits were received in the past year by the household responding to the survey, where "household" is defined simply by cohabitation. By contrast, SNAP defines "household" as the group of people one shares groceries and meals with. Two people who share an apartment and who buy groceries and prepare meals separately would be counted as two households under SNAP but one household in the ACS. Some of the disparity in totals is likely explained by households in the ACS that contain a student and received SNAP benefits but did not get the exemption to the student rule for the student: in these households, the student is not factored into the calculation of monthly benefits. **11** The ACS asks respondents whether they received SNAP benefits in the past year. By contrast, the total provided by CDSS refers to annualized California college students receiving exemptions from the SNAP student rule: for example, if John received CalFresh benefits for 7 months out of the year and Carlos received benefits for 5 months out of the year, then John and Carlos would sum to 1 annualized student, not 2, in the annualized total. As a result, a total of 127,360 students should be interpreted as "On average over the year, 127,360 students are receiving the exemption at any given time." Tracking the headcount of individual students receiving the exemption, as the ACS does, would yield a higher number.