

## Student Opposition to University Pouring Rights Contracts



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**Introduction:** The majority of large public universities have exclusive pouring rights contracts with beverage companies that produce and market sugar-sweetened beverages. Pouring rights contracts contain provisions that conflict with recommendations from major public health organizations that institutions reduce sugar-sweetened beverage availability, marketing, and consumption. This study assessed the following among students at 3 public universities: student perception of pouring rights contracts (the extent to which they favored or opposed pouring rights contracts), the association between student socioeconomic characteristics and perception of pouring rights contracts, student estimates of pouring rights contract revenue, and the association between student pouring rights contract revenue estimates and perception of pouring rights contracts. To contextualize results, actual pouring rights contract revenue as a percentage of total revenues was estimated.

**Methods:** A cross-sectional exploratory study was conducted among a convenience sample of 1,311 undergraduate sugar-sweetened beverages-consuming students recruited from 3 large and diverse public universities in Northern California. On an online questionnaire, undergraduate students indicated the extent to which they favored or opposed pouring rights contracts on a 10-point scale (oppose=1–5, favor=6–10) and provided a numeric estimate of the percentage of total university revenue they thought their university's pouring rights contract generated. Regression models were used to analyze differences in perception of pouring rights contracts by student socioeconomic characteristics and estimates of university revenues generated by pouring rights contracts. In addition, pouring rights contracts and financial reports were obtained from the 3 universities to estimate actual pouring rights contract revenue as a percentage of total revenues. Survey data were collected between August and November 2018 and analyzed in August 2022.

**Results:** A large majority of students (81%) opposed pouring rights contracts, and the opposition did not significantly differ by student socioeconomic characteristics, including by levels of food security, need-based financial aid, participation in federal food assistance or healthcare programs, parental education, or parental income (all  $p>0.14$ ). The median student estimate for pouring rights contract revenue as a percentage of total university revenue was 10%. In contrast, the estimated actual annual revenue generated from the pouring rights contracts ranged from 0.01% to 0.04% at these schools. Revenue estimates were not significantly associated with participants' opposition or favoring of pouring rights contracts ( $p=0.65$ ).

**Conclusions:** A large majority of students opposed pouring rights contracts, and this opposition was similar regardless of student socioeconomic characteristics or student estimates of pouring

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rights contract revenues. Students markedly overestimated (by >100–1,000-fold) the percentage of university revenue that came from pouring rights contracts. University administration should consider student views on pouring rights contracts when deciding whether to exit or continue with pouring rights contracts.

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## INTRODUCTION

Reducing sugar-sweetened beverage (SSB) consumption is a major public health priority owing to the clear link between SSB consumption and cardiometabolic disease risk.<sup>1</sup> The highest SSB consumption is observed in adolescents and young adults,<sup>2</sup> who are also primary targets of SSB marketing.<sup>3</sup> Young adulthood is a particularly critical period for health promotion because this is a developmental stage that confers a higher risk for adverse changes in health behaviors.<sup>4</sup> With 1 in 3 young adults in the U.S. enrolled in a 4-year college or university,<sup>5</sup> postsecondary institutions are uniquely positioned to promote health and wellness among their students, but at least 87% of large public institutions have entered into pouring rights contracts (PRCs) with beverage companies that sell SSBs, typically Coca-Cola or PepsiCo.<sup>6</sup>

PRCs provide beverage companies with near-exclusive rights to sell, market, and/or promote their beverages, particularly SSBs, on campus, in dining halls, in vending machines, at school events, and off campus as well (e.g., televised games and cobranded packaging).<sup>6</sup> In return, beverage companies provide universities sponsorship monies or other benefits such as product donations and commissions.<sup>6</sup> PRCs incentivize schools to market SSBs and maximize sales through volume incentives and volume minimums, and contract stipulations can even interfere with water availability.<sup>7–10</sup> The promotion and marketing of SSBs in higher education directly conflicts with recommendations from major public health organizations (e.g., Centers for Disease Control and Prevention, American Heart Association, and National Academy of Medicine) that institutions reduce SSB availability, marketing, and consumption.<sup>11–13</sup>

Students are the largest group directly affected by PRCs, but there is a dearth of research on their perceptions of PRCs and the determinants of these perceptions. Only 1 study, which took place at a single midwestern university, evaluated opinions of PRCs and found that over 60% of students, staff, and faculty participants were unaware of PRCs, and <40% supported PRCs.<sup>14</sup> That study also identified some characteristics associated with PRC support (e.g., male, SSB consumption, lack of PRC

awareness, beliefs about causes of and health risks from SSB consumption) but did not examine other potential correlates, such as student understanding of PRC revenues and student SES. It is possible that students who believe that PRCs generate large amounts of revenue for their university would be more likely to favor PRCs. It is also possible that students with a greater reliance on financial aid and university services would be more likely to perceive that they may benefit from additional university revenue and hence support PRCs. To address these gaps in the literature, the objectives of this exploratory study were to assess the following among undergraduate students at 3 large California public universities: (1) student perception of PRCs (the extent to which they favored or opposed PRCs), (2) the association between student socioeconomic characteristics and perception of PRCs, (3) student estimates of PRC revenue (as a percentage of total university revenue), and (4) the association between student PRC revenue estimates and perception of PRCs. To contextualize results for the second objective, we also estimated actual PRC revenue as a percentage of total revenues from these 3 universities using data from their PRCs and financial reports.

## METHODS

### Study Sample

For this exploratory study, an online cross-sectional survey was conducted among a convenience sample of 1,353 undergraduate students across 3 large public universities (>10,000 degree-seeking students) in Northern California (2 University of California campuses and 1 California State University campus) from August to November 2018. The survey assessed students' perceptions of and estimated revenues generated by their campus' PRCs. This study obtained informed electronic consent and was approved by each university's IRB.

Eligible participants were current or recent (past year) undergraduate students aged  $\geq 18$  years who reported consuming at least 2 SSBs per week to ensure participant familiarity with SSBs and to avoid overrepresentation of health-conscious individuals. Participants were recruited through tabling (i.e., setting up a table on campus to

recruit passersby), flyers, class announcements, and online announcements, which described the study subject as assessing food and beverage choice and opinions. A \$5 electronic gift card incentive was provided for survey completion. To estimate actual PRC revenue as a percentage of total university revenue, each university's PRCs were obtained using public records requests, and the university's total annual revenue was obtained from financial reports on university websites.<sup>15–17</sup>

Of 2,796 potential participants who took the eligibility screener, 1,289 were ineligible (26 were not a current or recent undergraduate; 1,263 drank <2 SSBs per week), and 154 did not advance to the survey (Appendix Figure 1, available online). This left 1,353 participants (48%) who were eligible for the study and answered at least 1 question on the questionnaire. Of the 1,353 eligible participants, 42 were excluded because they did not answer any of the PRC questions. Thus, the analytic sample consisted of 1,311 participants who answered at least 1 PRC question (97% of the 1,353 eligible participants) (Appendix Figure 1, available online). There were no significant differences in characteristics between the analytic sample and the 42 excluded.

### Measures

Student favoring/opposition of PRCs was assessed with the following items developed by the research team, *Many universities like yours have exclusive contracts with one of either Coca Cola or Pepsi. These companies pay the University in exchange for the rights to sell and market their beverages to students in cafeterias, stores, athletic facilities, vending machines, and through other means. These contracts limit most beverages on campus to those sold by Coke or Pepsi and provide incentives to the University if more product is sold. From what you know about these contracts, do you favor or oppose them? (Multiple choice: 1=Strongly Oppose, 2, 3, 4, 5, 6, 7, 8, 9, 10=Strongly Favor)*. Responses were dichotomized into oppose (1–5) and favor (6–10) and are presented as both continuous and dichotomous outcomes. Although all options (1–10) were equally spaced so that participants could see that 1–5 and 6–10 were balanced on opposite sides of the response scale, because only the scale ends were labeled, we conducted a sensitivity analysis to describe student perceptions. In the sensitivity analysis, we used a 3-category outcome variable: oppose (1–4), neutral or unsure (5–6), and favor (7–10).

To assess student estimates of PRC revenue, the questionnaire item asked, *What percent (%) of your University's total revenues each year (money brought in from all sources) do you think comes from its exclusive contract with Coca Cola or Pepsi? (Fill in the blank: 0-100%)*. These questions were asked as part of a questionnaire

that also sought to develop and test SSB warning labels, in which students were randomized to view beverage dispensers with an SSB warning label or without any label (the control condition) and to select a hypothetical beverage to have with a meal.<sup>18</sup> As described in the analysis section below, there were no differences between the warning label condition and the control condition in response to subsequent PRC items.

The questionnaire assessed student socioeconomic characteristics: food security (using a 2-question screener<sup>19</sup>), highest parental educational attainment of either parent, and parental household income. In addition, need-based financial aid and participation in federal food assistance or healthcare programs were assessed by a single multiple-answer item asking whether participants received any of the following: *need-based grants/scholarships or loans to pay for college and living expenses; CalFresh, SNAP, food stamps, WIC, Medi-Cal, or Medicaid; or none of the above*. The questionnaire also assessed student age, race, Hispanic ethnicity, and gender.

To estimate the actual percentage of each university's total annual revenue generated by their PRC, we extracted each university's total annual revenue and divided it by the average annual revenue generated by each PRC. For 2 universities, we extracted total annual revenue for 2018–2019, the same year the survey was conducted, and for 1 university, we extracted total annual revenue for 2021–2022, the first year of the PRC that was provided by that university. To calculate the average annual revenue generated by each PRC, we divided total PRC revenue by PRC duration (in years). Total PRC revenue was coded from each contract and included all monetary commitments for sponsorship, signing, and dedicated funds (e.g., Athletic Fund). This did not include the value of noncash items (e.g., product donations), commissions (which universities would also receive as part of non-PRC procurement contracts [J Falbe, unpublished data, 2023]), or marketing funds (earmarked for marketing beverages). This calculation assumed that any volume minimums required for the university to receive monetary payments would be met.

### Statistical Analysis

Frequencies, percentages, and medians of responses to PRC questions were calculated and presented. Because student socioeconomic characteristics could influence PRC perceptions, bivariate Poisson regression models with robust SEs<sup>20</sup> were used to examine the differences in the probability of opposing PRCs by student socioeconomic characteristics. Owing to the non-normal distribution of student estimates of PRC revenues, a Wilcoxon rank-sum test examined differences in revenue estimates

comparing those who opposed with those who favored PRCs. To ensure that viewing a warning label on the questionnaire did not influence students' PRC responses, the same analytic approaches were used to examine differences in PRC responses by prior warning label exposure; there were no meaningful or significant differences between the control and warning label groups (probability ratio=1.03,  $p=0.39$  for opposing PRCs and  $b=0.5$  percentage point,  $p=0.39$  for revenue estimates). In addition, because responses did not differ by school (all  $ps>0.8$ ), results are presented for the entire sample. In addition, in sensitivity analyses, we also ran the Poisson regression models and Wilcoxon rank-sum test when redefining 5–6 as neutral or unsure and classifying the outcome in 2 different ways: (1) oppose (1–4) versus neutral/unsure and favor (5–10) and (2) oppose and neutral/unsure (1–6) versus favor (7–10). All statistical tests used 2-sided  $\alpha=0.05$  and were conducted in Stata/MP 15.1 (Stata-Corp LP, College Station, TX) and R, Version 4.2.2.

## RESULTS

Two thirds (68%) of the analytic sample were women; 28% were Hispanic of any race, 44% were non-Hispanic Asian; 20% were non-Hispanic White; 5% were non-Hispanic multiracial; 2% were non-Hispanic Black; and 1% were non-Hispanic Pacific Islander, Native Hawaiian, American Indian, or Native Alaskan. About half (47%) were first-generation college students, 62% experienced food insecurity, 59% received need-based financial aid, and 35% participated in a federal food and nutrition assistance program or Medi-Cal/Medicaid (Table 1).

Most undergraduate students (81%) opposed PRCs (Figure 1). The most frequent response was 5 (mild opposition; 31%), followed by 1 (strong opposition; 14%) and 3 (moderate opposition; 14%). In a sensitivity analysis in which 5–6 were redefined as neutral or unsure, 50% opposed, 38% were neutral or unsure, and 12% favored.

There were no significant differences in the probability of opposing PRCs by socioeconomic or food security characteristics (all  $ps>0.14$ ) (Table 2). Opposition to PRCs was high among all groups (Table 2). For example, 82% of students participating in federal food and nutrition assistance programs or Medi-Cal/Medicaid opposed PRCs, as did 81% of students who received need-based financial aid and 85% of students with parental educational attainment less than a high school degree/GED. In sensitivity analyses in which the perceptions outcome was redefined, there were also no significant differences in perceptions of PRCs by socioeconomic or food security characteristics.

**Table 1.** Characteristics of 1,311 Undergraduate Student Participants Enrolled in California Public Universities

Characteristics	n	%
University		
University of California campus 1	574	42
University of California campus 2	441	34
California State University campus	338	25
Gender <sup>a</sup>		
Man	411	31
Woman	882	68
Nonbinary/gender nonconforming	10	1
Race and ethnicity <sup>a</sup>		
Hispanic, any race	353	28
Non-Hispanic, Asian	559	44
Non-Hispanic, Black	32	2
Non-Hispanic, multiracial	67	5
Non-Hispanic, Pacific Islander, Native Hawaiian, American Indian, or Native Alaskan	10	1
Non-Hispanic, White	252	20
Food security <sup>a,b</sup>		
Food secure	490	38
Experienced food insecurity	812	62
Need-based financial aid <sup>a</sup>		
Did not receive	503	41
Received	731	59
Federal food and nutrition assistance programs <sup>c</sup> or Medi-Cal/Medicaid <sup>a</sup>		
Did not participate	507	65
Participated	275	35
First-generation student <sup>a</sup>		
No	683	52
Yes	617	47
Parental educational attainment		
Up to some high school	171	13
High school degree/GED	179	14
Some college or higher	950	73
Parental income		
Less than the Median income (< \$65,000)	526	49
Median income or higher (≥\$65,000)	558	51

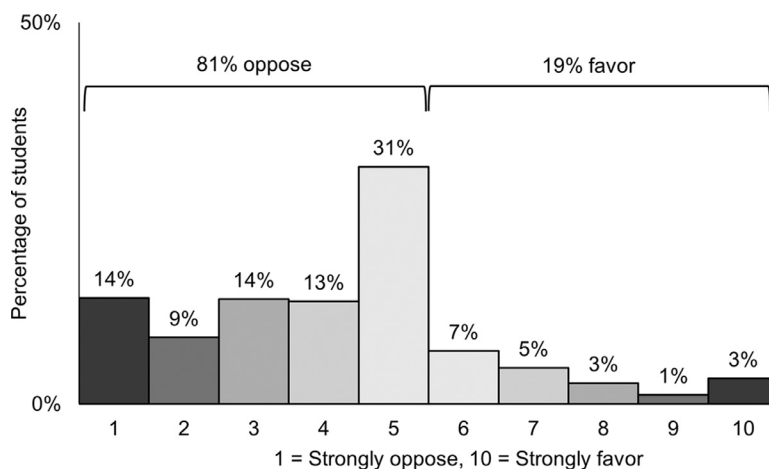
<sup>a</sup>Calculated excluding missing observation from the denominator. Observations were missing for 0.6%, 2.9%, 0.7%, 0.8%, 0.8%, 0.8%, 0.8%, and 17.3% for gender, race and ethnicity, food security, need-based financial aid, government assistance, first-generation student, parental educational attainment (either), and parental income, respectively.

<sup>b</sup>Determined by a 2-question screener from the American Academy of Pediatrics and the Food Research and Action Center.<sup>19</sup>

<sup>c</sup>Reported participation in CalFresh/SNAP/food stamps or WIC.

SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants and Children.

The median student estimate of PRC revenue as a percentage of total university revenue was 10% (Figure 2). In contrast, the estimated actual PRC revenue as a



**Figure 1.** Students' opinion on university pouring rights contracts (N=1,308).

Those who responded 1–5 were classified as oppose in response to the question, *Many universities like yours have exclusive contracts with one of either Coca Cola or Pepsi. These companies pay the University in exchange for the rights to sell and market their beverages to students in cafeterias, stores, athletic facilities, vending machines, and through other means. These contracts limit most beverages on campus to those sold by Coke or Pepsi and provide incentives to the University if more product is sold. From what you know about these contracts, do you favor or oppose them? (1=Strongly Oppose, 10=Strongly Favor)*, and those who responded 6–10 were classified in favor.

percentage of total university revenue, calculated from each university's PRCs and financial reports, ranged from 0.01% to 0.04%. Fewer than 1% of student estimates were  $\leq 0.1\%$ .

Student estimates of PRC revenue did not significantly differ between those who opposed and those who favored PRCs ( $p=0.65$ ). However, in sensitivity analysis in which the perception outcome was defined as oppose (1–4) versus neutral/unsure and favor (5–10), those who opposed estimated a slightly lower percentage of total university revenue generated by the contract (median=10% vs 10%, mean=16% vs 18%, respectively;  $p=0.02$ ).

## DISCUSSION

This exploratory study examined undergraduate student perception of PRCs across 3 California public universities and found that a large majority of students (81%) opposed PRCs. This high degree of opposition did not differ by student SES or food-security status. For example, the majority (81%) of students who received need-based financial aid (and thus may perceive that they benefit from additional university revenue) were opposed to PRCs. Student opposition to PRCs was also not meaningfully associated with their estimates of how much university revenue was generated from their campuses' PRCs.

Similar to our findings of high student opposition to PRCs, a study of a single midwestern university<sup>14</sup> found that students, faculty, and staff were generally unsupportive of PRCs for reasons including health and

environmental concerns and beliefs that the PRC limits competition, conflicts with university mission, is a form of corporate intrusion, and targets a susceptible audience. In that study, the majority of participants (64%) were unaware of PRCs. Also consistent with our findings of high student opposition to PRCs was the recent student-led advocacy against PRCs. For example, at San Francisco State University student advocacy resulted in the university abandoning efforts to enter into a PRC,<sup>21</sup> suggesting that the views of students have the potential to influence the decision making of university administrators around PRCs. In addition, Humboldt State University and University of Vermont recently exited their PRCs,<sup>22,23</sup> and the University of British Columbia substantially modified their PRC to be able to implement a healthy beverage initiative.<sup>24</sup> There are several active campaigns calling for universities to exit their PRCs, such as the Pour Out Pepsi campaigns at the University of California, Berkeley<sup>25</sup> and Johns Hopkins University<sup>26</sup> and the Campaign for Healthy Food at the City University of New York.<sup>27</sup> Furthermore, the recent formation of national campaigns and toolkits on PRCs in higher education demonstrates that this issue is gaining traction and attention on a national level.<sup>28</sup> In addition to student-led campaigns in opposition to PRCs, many campuses have adopted healthy beverage initiatives, single-use plastic elimination policies, and small-business first programs, with which many provisions in PRCs may be incompatible. Universities should consider student opinions when entering into or renegotiating PRCs, especially considering universities' increasing reliance on student tuition<sup>29</sup> and the importance of student

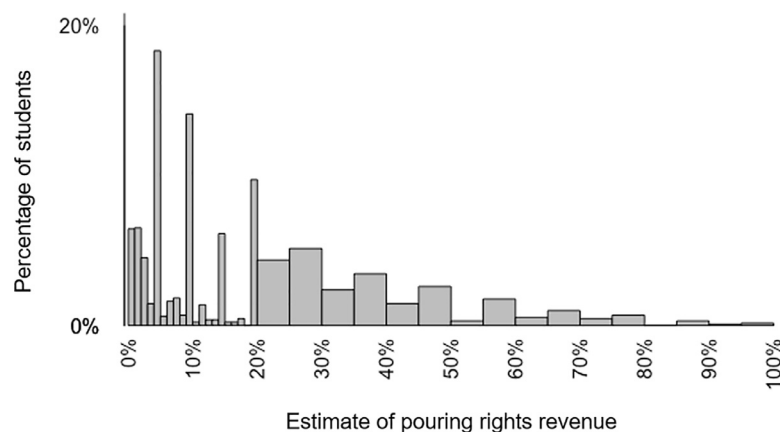
**Table 2.** Student Opposition and Favoring of Pouring Rights Contracts by Socioeconomic Characteristics

Student characteristics	Oppose, <sup>a</sup> n (%)	Favor, <sup>a</sup> n (%)	Relative difference in opposition by participant characteristics <sup>b</sup>	
			Probability ratio	p-value
Overall (N=1,308)	1,059 (81%)	249 (19%)	N/A	N/A
Food security				
Food secure	407 (83%)	83 (17%)	ref	N/A
Experienced food insecurity	646 (80%)	163 (20%)	0.96	0.14
Need-based financial aid				
Did not receive	407 (81%)	96 (19%)	ref	N/A
Received	593 (81%)	136 (19%)	1.01	0.75
Federal food and nutrition assistance program or Medi-Cal/Medicaid				
Did not participate	410 (81%)	97 (19%)	ref	N/A
Participated	225 (82%)	49 (18%)	1.02	0.60
First generation student				
No	547 (80%)	135 (20%)	ref	N/A
Yes	505 (82%)	110 (18%)	1.02	0.38
Parental education				
Up to some high school	144 (85%)	25 (15%)	1.05	0.14
High school degree/GED	141 (79%)	38 (21%)	0.97	0.54
Some college or higher	767 (81%)	182 (19%)	ref	N/A
Parent income				
Less than the median income (<\$65,000)	428 (82%)	96 (18%)	1.02	0.55
Median income or higher (≥\$65,000)	447 (80%)	110 (20%)	ref	N/A

<sup>a</sup>Those who responded 1–5 were classified as oppose in response to the question, *Many universities like yours have exclusive contracts with one of either Coca Cola or Pepsi. These companies pay the University in exchange for the rights to sell and market their beverages to students in cafeterias, stores, athletic facilities, vending machines, and through other means. These contracts limit most beverages on campus to those sold by Coke or Pepsi and provide incentives to the University if more product is sold. From what you know about these contracts, do you favor or oppose them?* (1=Strongly Oppose, 10=Strongly Favor), and those who responded 6–10 were classified as favor.

<sup>b</sup>From Poisson regression models using robust SEs to estimate probability ratios (i.e., RRs) comparing opposition to pouring rights contracts by student socioeconomic characteristics. The missing indicator method was used for any missing exposure variables.

N/A, not applicable.

**Figure 2.** Students' estimates of the percentage of total university revenue generated by the pouring rights contract (N=1,304)

<sup>a</sup>Students were asked, *What percent (%) of your University's total revenues each year (money brought in from all sources) do you think comes from its exclusive contract with Coca Cola or Pepsi? (0-100%).* The estimated actual PRC revenue as a percentage of total university revenue, calculated from each university's PRCs and financial reports, ranged from 0.01% to 0.04%.

PCR, pouring rights contract.

satisfaction and university reputation for admissions indicators, student persistence, and alumni giving.<sup>30–33</sup>

Another finding of the research presented in this paper is that students grossly overestimated the revenue their university received from its PRC (median=10% of the university total). The actual percentage of annual revenue generated by PRCs ranged from 0.01% to 0.04%. A small percentage of revenue from PRCs has also been observed at primary and secondary schools.<sup>34</sup> Students' large overestimation (>100–1,000-fold) of revenues suggests unawareness of the relatively small contribution of PRCs to universities' budgets. It is possible that student opposition could be stronger with full knowledge of the relative size of PRC revenues, of which few students in this study were aware.

### Limitations

Strengths of the study include being the first multicampus study to assess student perception of PRCs and the sample including universities from the country's largest (California State University) and its most highly ranked (University of California) public university systems. This is also the first study to examine potential differences in opposition to PRCs by student socioeconomic characteristics and student estimates of revenue generated from their campus' PRC. Study limitations include assessing a convenience sample of California public university students, potentially preventing generalizability to the entire student body at these universities as well as other universities. Specifically, generalizability may be limited by a higher percentage of women than is representative of the student bodies and by excluding those who consumed <2 SSBs per week. Because data were collected in the 2018–2019 school year, they may not reflect the current perceptions of students. The questions in this study were developed by the authors and not examined for psychometric properties. The use of a 10-point PRC opinion scale without a neutral, unsure, or no-opinion option could result in some misclassification of mild opposition (5 rating) and mild favoring (6 rating). However, even when reclassifying 5 and 6 ratings as neutral or unsure, there was a greater than 4-to-1 ratio of oppose to favor (50% vs 12%). Finally, we did not assess specific reasons for opposition, nor did we assess student awareness of PRCs, and it is possible that the questionnaire was the first time some participants were made aware of the existence of such contracts.<sup>35</sup>

PRCs in higher education are a prime but understudied example of the commercial determinants of health, wherein the SSB industry more generally falls under the umbrella of the unhealthy commodities industry.<sup>36</sup> Future research is needed to study the effects of PRCs on SSB availability and consumption and sustainability goals on college and university campuses. Prior research on PRCs

in the middle-school setting has found that PRCs were associated with higher SSB consumption,<sup>35</sup> which may also hold true in higher education. Furthermore, future studies should assess student, alumni, faculty, staff, and the public's awareness and views of PRCs as well as reasons for opposition across a variety of institutional types and locations and whether these stakeholders perceive PRCs as aligning with or undermining universities' educational, health, sustainability, and reputational objectives.

### CONCLUSIONS

The majority (81%) of surveyed undergraduate students attending 1 of 3 large California public universities opposed PRCs. This opposition was similarly high across levels of SES and food security status. Notably, students who received need-based financial aid and therefore may perceive themselves as beneficiaries of increased university revenue expressed strong opposition. In addition, students substantially overestimated the percentage of university revenue generated by PRCs, which implies that they may not be aware of the relatively minor contribution of PRCs to university revenue. It is also possible that students are generally unaware that such contracts exist. Universities should be transparent regarding their agreements with beverage companies because these contracts may directly impact the health and food environments of students. The considerable student opposition to PRCs documented in the study should be considered by university administration in decisions to exit or continue with PRCs.

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### SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at [doi:10.1016/j.focus.2024.100190](https://doi.org/10.1016/j.focus.2024.100190).

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