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# ADDRESSING FOOD INSECURITY ON CAMPUS: Connecting Students with Sustained Basic Needs Supports to Improve Academic Outcomes







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# **ADDRESSING FOOD INSECURITY ON CAMPUS: Connecting Students with Sustained Basic Needs Supports to Improve Academic Outcomes**

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# Introduction

Community colleges provide a critical access point to postsecondary education – particularly for students from low-income backgrounds, adult students balancing studies with work and family responsibilities, and students of color, all of whom are who are more likely to enroll in these institutions – yet only two in five community college students earn a postsecondary credential.<sup>i</sup> A growing body of research points to basic needs insecurity as a major contributor to low credential completion rates.<sup>ii</sup> Food insecurity in particular is widespread among public two-year college students, with a recent national survey finding that nearly 40% of students in two-year colleges have challenges meeting their basic food needs.<sup>iii</sup> Rates of basic needs insecurity are more pronounced among students of color, low-income students, and student parents, contributing to lower rates of academic success for these student groups within both two-year and four-year postsecondary institutions.<sup>iv</sup>

Despite increasing national attention to basic needs insecurity – and mounting efforts by community colleges to address students’ food, housing, transportation, and other basic needs – few studies have examined the benefits of connecting students with basic needs supports on academic outcomes. The evidence that is currently available on student outcomes associated with college efforts to support students’ basic needs is somewhat mixed; however, these studies consistently point to the importance of approaches to serving students that are personalized and that offer students multiple types of basic needs supports types within a single, centralized location.<sup>v</sup>

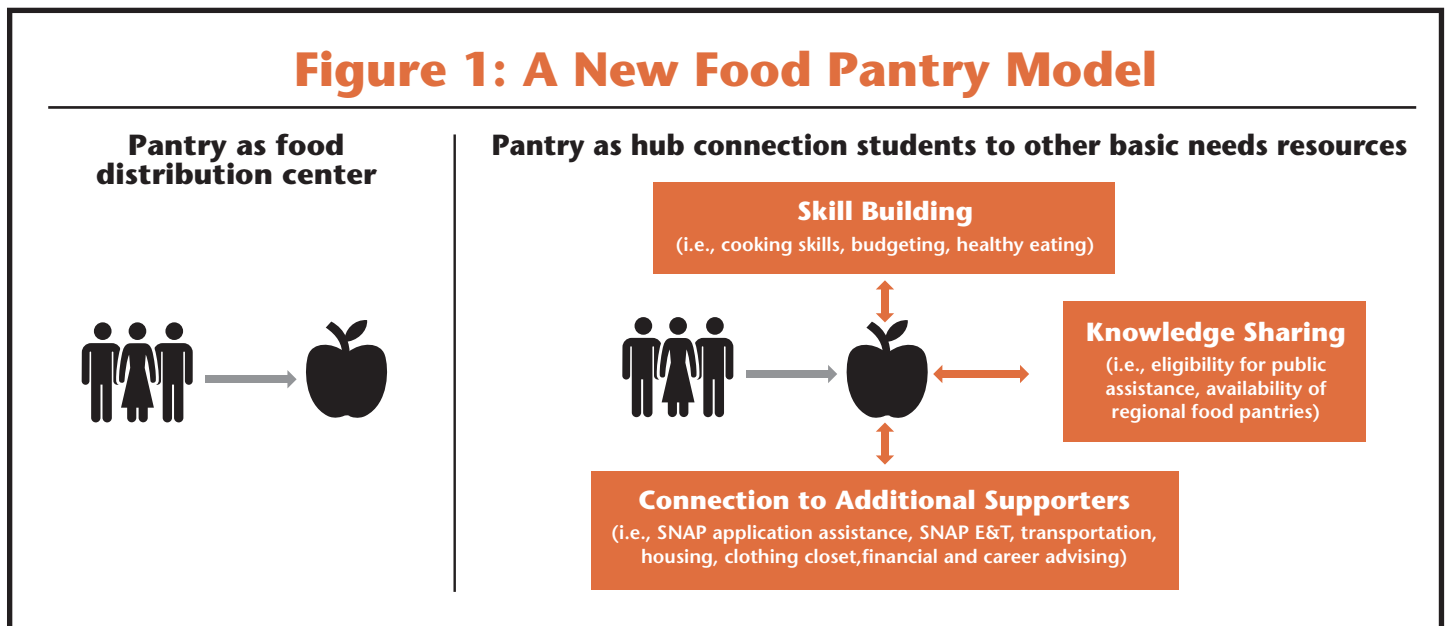
This report highlights the efforts of four Arkansas community colleges to address students’ basic needs by transforming their campus food pantries from supplemental food distribution centers to hubs connecting students to a broad array of additional, more sustained basic needs supports. Drawing on college administrative data, this study assesses the benefits of this new food pantry model on students’ academic success. Results from regression analyses point to notable academic benefits of this new food pantry model. Specifically:

- **Students accessing the new food pantry model are 6 to 8 percentage points more likely than students not accessing the pantry to be enrolled one semester and one year later, and to earn a credential.**
- **Low-income students, adult students, and students of color are more likely to access campus food pantries, driven by colleges’ targeted outreach efforts to key student groups.**
- **The notable academic benefits of the new food pantry model are present for Pell recipients, for adults, and for students of color – with especially high proportional increases in credential attainment for students of color who access campus pantries.**

# A New Food Pantry Model: The Arkansas Basic Needs Initiative

The four Arkansas community colleges highlighted in this report - Arkansas Northeastern College, North Arkansas College, University of Arkansas-Phillips Community College, and University of Arkansas-Pulaski Technical College - are on the forefront of innovations related to supporting students' basic needs through the operationalization of their campus food pantries. Building on their prior work supporting student success,<sup>vi</sup> these colleges reframed their food pantries from food distribution centers to hubs that help students learn new skills and connect to additional resources (see Figure 1). These efforts were supported by Arkansas Community College's Student Success Center as part of the ECMC Foundation-funded Basic Needs Initiative (BNI) (see box on page 3).

**Figure 1: A New Food Pantry Model**



Reimagined food pantries at the four Arkansas colleges are designed to curate and share knowledge about other supports that are available, like regional food pantries or information about eligibility for public assistance. Food pantries are directly connecting students to more sustained nutritional supports via SNAP application assistance – in partnership with the Arkansas Hunger Relief Alliance (AHRA) – and are connecting students to a host of additional resources including career closets, SNAP Employment and Training (E&T), transportation vouchers or gas cards, financial and career advising, housing assistance, and other basic needs supports. Importantly, food pantries are staffed with college personnel who can provide individualized attention to connect the students who access them with these additional supports.

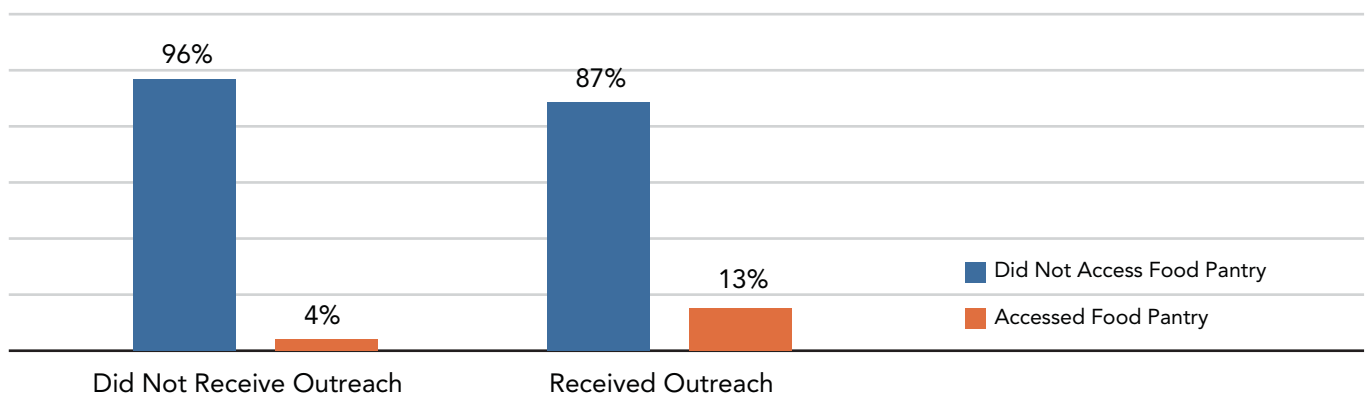


## Targeted Outreach to Promote Student Awareness of Basic Needs Resources

Key to Arkansas colleges' efforts to foster student awareness and engagement in food pantries and other basic needs supports is embedding information about these resources into existing communication venues, such as websites, hallway signage, course syllabi, student success courses, and campus events like new student orientation. Creating broad student awareness through existing campus communication also helps normalize basic needs resources as a typical part of the college experience, reducing potential stigma. Importantly, Arkansas colleges are also engaging in proactive outreach to specific groups of students who may especially benefit from basic needs supports, for example by partnering with departments or programs who serve low-income, adult students, and students of color like Arkansas Career Pathways, TRIO programs, and adult education. Financial aid offices at these colleges are also mailing letters to students with an estimated family contribution (EFC) of \$0 to let them know that supports are available, a practice recently reinforced by the U.S. Department of Education.<sup>ix</sup>

As part of their efforts connected to the BNI grant, colleges documented their outreach to students to encourage use of food pantries and other basic needs resources offered on campus -- often through the pantries. As noted above, this included broad outreach to all students as well as more targeted outreach provided to low-income students, adults, and student of color. Connecting this group-level outreach with students' food pantry usage suggests that colleges' efforts to spread the word about available supports are paying off. As shown in Figure 2, students at these campuses receiving group-level outreach about basic needs resources were three times as likely to access their campus food pantry compared to students not receiving outreach (13% vs. 4%). As highlighted in the next section of this report, colleges' efforts to target outreach to key groups also appears to be paying off, resulting in the disproportionate use of campus food pantries by students who may stand to benefit most from them.

**Figure 2: Food Pantry Usage, by Receipt of Basic Needs Outreach**



Source: Arkansas Basic Needs Initiative data.

\*Difference in food pantry usage between students receiving and not receiving outreach significant at  $p < .05$ .

Analytic sample comprised of 10,410 students enrolling in Fall 2020 or Fall 2021, 1,717 of whom received group-level basic needs outreach in that fall term and 8,693 not receiving outreach. Food pantry usage rates reflect visiting campus food pantry at any point between Fall 2020 and Spring 2022.

# Assessing the Benefits of a New Food Pantry Model on Academic Outcomes

Using student data from the four colleges participating in the Basic Needs Initiative in Arkansas, we examined academic outcomes for students accessing the new food pantry model. As noted in the introduction, although ample research has documented the negative impacts of food insecurity on students' academic progress, few studies have assessed the relationship between food pantry usage and students' subsequent retention and completion outcomes.

## Sample and methodology

As part of their efforts to reframe campus food pantries as hubs to connect students to additional supports, Arkansas BNI colleges used a student intake form to document food pantry usage and to identify other potential areas of student need. These data on food pantry usage were merged with administrative records containing information on demographic characteristics and academic outcomes for all students enrolled in these four colleges during the 2020-21 and 2021-22 academic years.

The analysis of student outcomes focuses on approximately 10,000 students who are first observed in our data in the Fall 2020 or Fall 2021 terms, and whose academic progress is followed through Fall 2022.<sup>x</sup> Among these fall cohorts, approximately 450 students – or 4.5% of all students in the sample – accessed their campus food pantry during the first fall term in which they appear in the data. Our analysis focuses on students' retention and completion outcomes associated with accessing campus food pantries – which were designed not only to meet students' immediate food needs but also to offer one-to-one guidance to connect students to other basic needs supports.

Table 1 presents characteristics for the analytic sample, both for students accessing campus food pantries in the first fall term in which they appear in the data and for students not accessing these pantries. There are notable differences between these two groups in terms of their demographic and academic characteristics.

Students accessing their campus food pantries are more likely to be female and are older, on average, than students not accessing campus pantries. More than 60% of students accessing food pantries are 25 or older, compared to less than 40% of students not using food pantries. Students using food pantries are more likely to be Black than non-users (52% vs. 37%), whereas those not accessing food pantries are more likely to be white; there are no significant differences between food pantry users and non-users in terms of identifying as Hispanic, Asian, Native American/Alaska Native, and Native Hawaiian/Pacific Islander. Unsurprisingly, a higher proportion of students accessing food pantries demonstrate financial need, with 72 percent receiving Pell compared to 56 percent among students not accessing their campus pantry. In other words, Pell recipients, students of color (driven by Black students), and adult students are taking advantage of their food pantries at higher rates. This greater proportional representation reflects, at least in part, colleges' efforts noted in the prior section to target their basic needs outreach efforts to key student groups.



**Table 1: Student Characteristics,  
by Food Pantry Usage in First Term**

	Did not access food pantry (n=9,950)	Accessed food pantry (n=460)	
<b>Demographic Characteristics</b>			
Female	64.6%	74.4%	*
Adult 25+	38.1%	61.1%	*
<b>Race/Ethnicity</b>			
White	53.1%	40.7%	*
Black	37.2%	51.6%	*
Hispanic	6.0%	4.7%	
Asian	1.9%	1.1%	
Native American/Alaska Native	1.5%	1.6%	
Native Hawaiian/Pacific Islander	0.3%	0.4%	
<b>Socioeconomic Status</b>			
Pell recipient	56.0%	72.4%	*
<b>Enrollment characteristics (first fall term)</b>			
Enrolled in Developmental Course	25.4%	24.1%	
Enrolled in Certificate program	9.5%	21.5%	*
Enrolled in Associate's program	84.9%	74.4%	*
Program undecided	5.7%	4.1%	
First-time-in-college	30.7%	21.1%	*
Enrolled full time	56.7%	71.7%	*

Source: Arkansas Basic Needs Initiative data.

\*Differences between food pantry users and non-users significant at  $p < .05$ . Analytic sample comprised of students enrolling in Fall 2020 or Fall 2021.

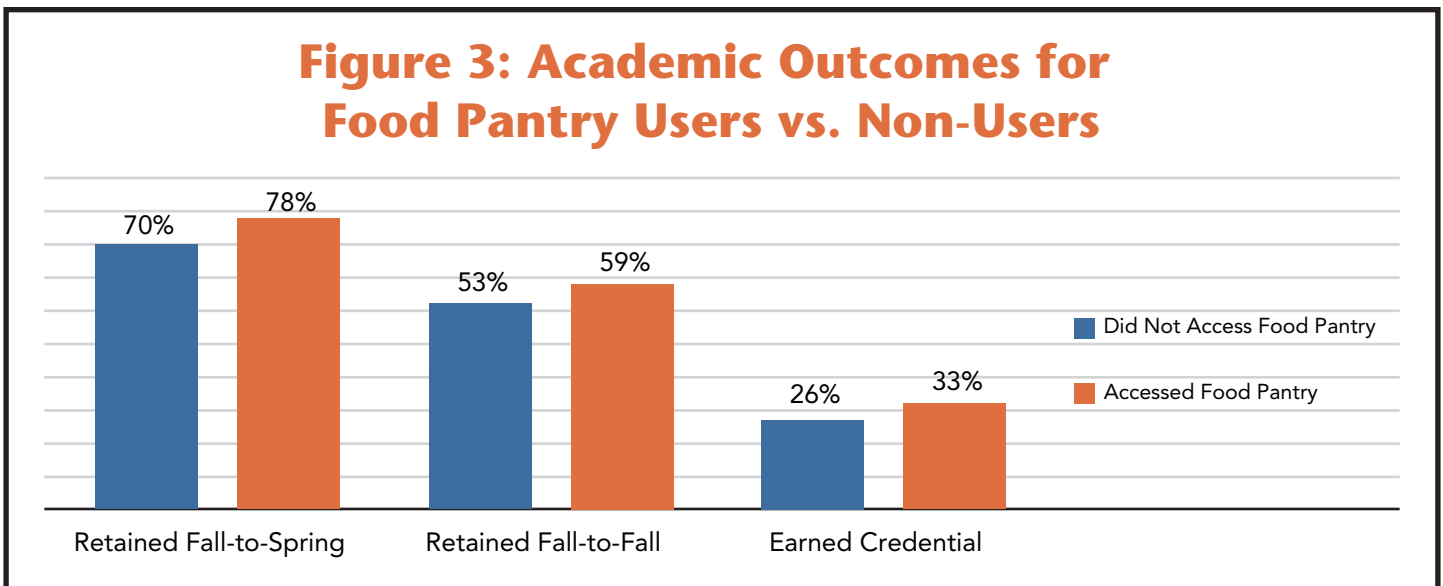
Students taking advantage of campus food pantries also differ from other students in terms of their enrollment characteristics. Students accessing food pantries are more likely to be enrolled full time (72 percent) compared to other students (57 percent), which may be connected to full-time students' engagement with their campuses at a higher frequency compared to part-time students. Students accessing campus pantries are also more likely to be enrolled in a non-degree Certificate program versus an Associate's degree program, which aligns with some colleges' efforts to target outreach about basic needs resources to specific non-degree CTE programs. Students accessing campus food pantries are less likely than other students to be first-time college students (21% vs. 31%), which again could be a function of college efforts to target outreach to adult students in Career Pathways who are more likely to be returning students. Finally, using enrollment in developmental education courses as a proxy for prior academic preparation, students accessing their campus food pantry appear to be similarly prepared compared to students not accessing pantries.

Given these student-level differences, our analysis estimates the association between food pantry usage and academic outcomes using regression models that control for these student characteristics, along with students' term of enrollment and institution. Controlling for demographic and academic differences between students accessing food pantries and students not accessing pantries reduces bias in estimates and can more effectively isolate the true relationship between the new food pantry model and students' retention and completion outcomes.

## Results

Figure 3 displays one-semester retention, one-year retention, and credential completion outcomes for students accessing their campus food pantry and for students who did not access the food pantry.<sup>xi</sup> Across all outcomes examined, exposure to the new food pantry model at Arkansas BNI colleges is associated with large and statistically significant benefits for students.

Specifically, students accessing their campus food pantry are 8 percentage points more likely to be retained one semester later compared to students not accessing the pantry (78% vs. 70%) and are 6 percentage points more likely to be enrolled one year later (59% vs. 53%). In addition, students accessing campus food pantries are notably more likely to earn a credential (33% vs. 26%), representing a 7 percentage point increase or a 25% increase relative to the average estimated completion rate for students not taking advantage of their campus pantry.



Source: Arkansas Basic Needs Initiative data.

n=10,021. All differences between food pantry users and non-users are statistically significant at  $p < .05$ .

Percentages represent average marginal effects from regressions that control for gender, age, race/ethnicity, Pell receipt, developmental education course enrollment, enrollment intensity, program of enrollment, first-time student status, institution, and start term.

In addition to examining the relationship between food pantry usage and academic outcomes for all students in the Arkansas BNI sample, we disaggregate the data in order to assess potential variation in these relationships for lower-income students, for students of color, and for adult students. As noted in the introduction, research on food insecurity within community colleges and public universities suggests that students of color, Pell recipients, and student parents (who tend to be older students) are relatively more likely to experience food insecurity. These student groups who are accessing food pantries at higher rates may especially benefit from Arkansas BNI colleges' new food pantry model designed not only to provide students with immediate access to food but also to connect students to sustained food and basic needs supports.

Table 2 summarizes the estimated effects of accessing the new food pantry model among Pell recipients, among adult students aged 25 and older, and among students of color.<sup>xii</sup> As illustrated in the table, all of these groups are experiencing substantial benefits from accessing campus food pantries in terms of retention and completion outcomes, with percentage point differences between food pantry users and non-users that range between 7 and 10 percentage points, depending on the outcome and on the student group. Importantly, these improvements represent very large *relative percent increases* over average outcomes for non-pantry users, which are especially notable among students of color. More specifically, among students of color, the roughly 10 percentage point increase in credential completion rate for food pantry users versus non-users (33% vs. 23%) represents a 40% relative increase in completion rates. These results for students of color are promising and suggest that the new food pantry model as delivered in Arkansas BNI colleges can be an effective approach to promoting racial equity in student success.<sup>xiii</sup>

**Table 2: Academic Outcomes for Food Pantry Users vs. Non-Users, by Student Characteristics**

	One-semester retention			One-year retention			Credential completion		
	Difference	Did Not Access Food Pantry	Accessed Food Pantry	Difference	Did Not Access Food Pantry	Accessed Food Pantry	Difference	Did Not Access Food Pantry	Accessed Food Pantry
All students (n=10,021)	<b>8.5%</b>	69.6%	78.1%	<b>5.7%</b>	53.0%	58.7%	<b>6.7%</b>	26.3%	33.0%
Pell recipients (n=5,668)	<b>9.5%</b>	73.9%	83.4%	<b>7.0%</b>	55.2%	62.3%	<b>8.0%</b>	26.9%	34.8%
Students of color (n=4,748)	<b>9.9%</b>	66.7%	76.6%	<b>6.9%</b>	50.2%	57.1%	<b>9.6%</b>	23.7%	33.3%
Adults 25+ (n=3,986)	<b>8.3%</b>	66.8%	75.1%	<b>7.8%</b>	51.7%	59.5%	<b>8.7%</b>	28.2%	36.9%

Source: Arkansas Basic Needs Initiative data.

Bolded figures represent the percentage point difference in outcomes between food pantry users and non-users.

Within each student group, all differences between food pantry users and non-users are statistically significant at  $p < .05$ . Percentages represent average marginal effects from regressions run for each student group that control for gender, age, race/ethnicity, Pell receipt, developmental education course enrollment, enrollment intensity, program of enrollment, first-time student status, institution, and start term.

## Conclusion

Although community colleges are increasingly engaging in efforts to address students' basic needs, limited evidence exists to demonstrate the impact of these efforts on student retention and completion. Results from this study about four Arkansas community colleges help to fill this evidence gap and suggest that using campus food pantries as hubs to proactively connect students to additional resources can be an effective strategy to support students and improve academic outcomes. Importantly, findings from this study additionally suggest that the new food pantry model in Arkansas is correlated with positive academic outcomes for students receiving Pell who are more likely to be from lower-income backgrounds; for adult students who are more likely to have care-taking responsibilities; and for students of color who have been consistently underserved by U.S. postsecondary institutions. Of note, students of color appear to especially benefit from accessing campus food pantries in terms of credential completion, signaling the promise of these types of college efforts to close persistent racial equity gaps.

Although this study provides promising evidence on the academic benefits of providing sustained basic needs supports to students, additional research is necessary to further validate these findings and to better understand the mechanisms contributing to the success of the new food pantry model. Data made available for this study did not include student-level information on SNAP receipt or receipt of other public benefits, making it impossible to confirm the extent to which food pantries were contributing to student success by connecting students to these additional resources.<sup>xiv</sup>

Implementing a robust food pantry model is a whole-college effort that requires committed leadership to build a campus culture for basic needs support, as well as proactive and multi-faceted student outreach approaches that can combat stigma and can ensure that students are aware of and taking advantage of these services. College practitioners are encouraged to read a companion Implementation Guide drawing on lessons learned from the four Arkansas colleges and from national research, which provides actionable strategies and concrete examples for transforming campus food pantries into hubs that can address students' broader basic needs.

# Acknowledgements

The evaluation team at DVP-PRAXIS LTD thanks the students, faculty, staff, and basic needs champions at Arkansas Northeastern College, North Arkansas College, University of Arkansas-Phillips Community College, and University of Arkansas-Pulaski Technical College for their ongoing commitment to supporting students' basic needs – before, during, and after a global pandemic – and for sharing their time and experiences with us to support the dissemination of learning from the Basic Needs Initiative. We would also like to thank Rachel Lewis at Arkansas Department of Higher Education, Arkansas Community Colleges, Education Northwest, and the ECMC Foundation for their support of the colleges and this important work.



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## FOOD PANTRY



## ENDNOTES

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<sup>i</sup>Approximately 40% of beginning students first enrolling in public, two-year colleges go on to earn a credential of any kind at any institution within six years. Causey, J., Huie, F., Lang, R., Ryu, M., & Shapiro, D. (2020). *Completing college 2020: A national view of student completion rates for 2014 entering cohort* (Signature Report No. 19). National Student Clearinghouse Research Center.

<sup>ii</sup>United States Government Accountability Office, 2018. *Food Insecurity: Better Information Could Help Eligible College Students Access Federal Food Assistance Benefits*. Washington, DC: GAO Report 19-95 (December).

Amy Ellen Duke-Benfield and Brian Sponsler (2019). *Leveraging Public Benefits to Improve States' Postsecondary Access and Completion*. Washington, DC, and Denver, CO: Center for Law and Social Policy, and Education Commission of the States. (July).

<sup>iii</sup>Hope Center for College, Community, and Justice (2021). *#RealCollege 2021: Basic Needs Security During the Ongoing Pandemic*. Philadelphia, PA: Hope Center for College, Community, and Justice. <https://www.luminafoundation.org/wp-content/uploads/2021/04/real-college-2021.pdf>.

<sup>iv</sup>Maroto, Maya E.; Snelling, Anastasia; Linck, Henry (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.

Camelo, Karen; Elliott, Marta (2019). Food Insecurity and Academic Achievement among College Students at a Public University in the United States. *Journal of College Student Development*, 60(3): 307-318.

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<sup>v</sup>Sullivan, Margaret; Price, Derek V.; Fox, Lindsay; and Person, Ann (2018). How Community Colleges Address Basic Needs and Financial Stability of Low-Income Students to Boost College Completion: Lessons from the Working Student Success Network. Mathematica Policy Research & DVP-PRAXIS LTD.

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<sup>vi</sup>As members of the Working Student Success Network and their Guided Pathways work. <https://www.dvp-praxis.org/wp-content/uploads/2018/02/WSSN-Final-Report-2018.pdf>

<sup>vii</sup> <https://www.ecmcfoundation.org/what-we-do/initiatives/basic-needs-initiative>

<sup>viii</sup>Deal, S.A. & Valentine, J.L. (2023). Addressing food insecurity on campus: An implementation guide for Arkansas community colleges. DVP-PRAXIS LTD. Indianapolis, IN.

<sup>ix</sup>Dear Colleague Letter on the Use of FAFSA Data. <https://fsapartners.ed.gov/knowledge-center/library/dear-colleague-letters/2022-01-20/use-fafsa-data-administer-federal-programs>.

<sup>x</sup>We focus on students first enrolling in a fall term within our dataset as these fall-cohort students comprise the majority of the sample (approximately 80%) and their outcomes can be followed for at least one full academic year.

<sup>xi</sup>We follow the National Student Clearinghouse in defining retention as continued enrollment (or degree completion) within the same higher education institution during the specified timeframe. <https://nscresearchcenter.org/wp-content/uploads/SnapshotReport18-PersistenceRetention.pdf>

<sup>xii</sup>We focus on students of color as an aggregate category given that - with the exception of Black students - sample sizes for other individual student groups do not support independent regression analyses. Students of color are defined as students identifying as Black, Hispanic, Asian, Native American/Alaska Native, or Native Hawaiian/Pacific Islander.

<sup>xiii</sup>Although outreach to adult (25+) students of color was not an explicit goal of BNI efforts, it is notable that among adult students of color in the sample (n=2,055), accessing the new food pantry model was associated with a 9 percentage point increase in one-semester retention, an 8 percentage point increase in one-year retention, and an 11 percentage point increase in credential completion.

<sup>xiv</sup>In addition, although our study design controls for various student characteristics in order to bolster confidence in our estimates, we cannot control for any unobservable characteristics of students that may be positively correlated with both food pantry usage and with academic outcomes, introducing bias into our estimates.





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