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Factors Affecting Food Security and Participation in Food Pantries in the U.S.

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Agricultural Economics

by

Alexis Skinner
University of Arkansas
Bachelor of Science in Agribusiness, 2021

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This thesis is approved for recommendation to the Graduate Council.

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Abstract

Given the rise in food inflation, reduction of SNAP benefits, and the increased demand for food pantry participation, a more holistic understanding of potential barriers to obtaining assistance from non-Federally regulated food pantries is warranted. In May of 2022, 625 surveys were administered to low-income participants in the United States who participated in food collection from a food pantry in the previous month. Those participants were asked to select what information they were asked to provide during their visit, including home address, place of employment, Social Security card, driver's license, household size, blood test, or others. Some forms of the required information needed to participate can be identified as a barrier to entry because it could be viewed as a deterrent to a segment of potential food pantry participants. This study found that the average number of barriers (pieces of information required) experienced across all respondents was 2.4 barriers to participation. Additionally, this study found that minorities (including Hispanic/Latino, African American, Native Hawaii/Pacific Islander, Mixed, Asian, and American Indian/Alaskan Native) are 12% more likely to experience high (three or more) barriers to food pantry participation relative to White food pantry participants ($P<0.01$). Further, when analyzing the barriers to food pantry participation comparing all races, this study found that African American food pantry participants are 28% more likely to experience high barriers (three or more) to food pantry participation than White participants ($P<0.001$). SNAP users were 11% more likely to experience high barriers (three or more barriers) to food pantry participation than non-SNAP users ($P<0.05$). When comparing all genders, this study revealed that female food pantry participants are 11% more likely to experience high barriers (three or more) to food pantry participation than males ($P<0.05$). This study also found that African American female food pantry participants are 32% more likely to

experience high barriers (3 or more) to food pantry participation than African American male food pantry participants ($P<0.001$). Further, this study found that African American food pantry participants who use SNAP are 38% more likely to experience high barriers (three or more) to food pantry participation than White SNAP-using food pantry participants ($P<0.001$). The implications of this study are that the most susceptible populations to being food insecure such as minorities, females, and SNAP-using individuals, are also facing the greatest number of barriers to food pantry participation compared to White, male, and non-SNAP-using individuals, respectively.

Acknowledgment

I owe my deepest thanks to Lanier Nalley, Ph.D., for his guidance and mentorship throughout this study. I would also like to thank Wei Yang for his valuable insight and effort throughout the entire process. Special thanks to Rodolfo Nayga, Ph.D., and Di Fang, Ph.D. for their assistance in developing and revising this survey.

Dedication

This thesis is dedicated to my parents, Dan and Nicole Kies, and my grandmother, Elaine Kies, for their unwavering support. Thank you for encouraging me in all my endeavors.

Table of Contents

1. Introduction 1
2. Data and Methodology 13
   2.1. Data Collection 13
   2.2. Low vs. High Barrier Ranking 15
   2.3. County Political Affiliation 16
   2.4. Demographics 16
   2.5. Econometric Analysis 18
3. Results 19
   3.1. Frequency of Barriers 19
   3.2. Frequency of Barrier Combinations 27
   3.3. Probit Regression Results 32
4. Discussion and Conclusions 36
5. References 42

List of Tables/Figures

Table 1. Potential Effect of Barriers on Specific Population Groups in Food Pantry Participation 8
Figure 1. Example Income Screening Question for Low-Income Classification for a Four-Person Household 13
Figure 2. Example Question for Participants Regarding Requirements for Food Pantry Participation 15
Table 2. The Average Number of Barriers to Participation in the Last Food Pantry Visit by Survey Participants 22
Table 3. Food Pantry Barriers Frequency by Type and Race 26
Table 4. Barrier Combination Occurrence by Race 30
Table 5. Probit Models Regression Results 32
Table 6. Marginal Effects from Various Probit Model Specifications 33

1. Introduction

The United States Department of Agriculture (USDA) defines food insecurity for a household as "the limited or uncertain of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" found in Anderson (1990). In 2021, it was estimated that there were 13.5 million households that were food insecure in the United States (Coleman-Jensen et al. 2021). This food insecurity led to an estimated 53 million people relying on food pantries and food banks for emergency food assistance in 2021 (Feeding America 2021).

Food pantries aim to improve food access by providing supplemental food assistance for food-insecure individuals. Food pantries can be operated by churches, community centers, schools or universities, shelters, or other community/local/national organizations (Seligman and Berkowitz 2019). Food banks are "warehouses that store large quantities and varieties of food items to be distributed by smaller front-line agencies known as food pantries, which directly serve the end users free of charge" (Ruopeng et al. 2019). Food banks receive food from drives, local farmers, businesses, or through federal program funding and, in turn, donate food or sell it at a discounted price to food pantries (Morello 2021). Food banks typically do not give food directly to people facing hunger but act more as food storage and distribution centers for food pantries (Morello 2021). Food pantries can also acquire food directly from food drives, the agricultural community, businesses, or, if available, make purchases from food banks.

Food pantries are often autonomous and make decisions regarding operations, how and whom they serve, how frequently individuals can receive assistance, and eligibility criteria (Ginsburg et al. 2019). Given the autonomy of each food pantry and a lack of enforced guidelines for food pantry operators, access to and requirements for food-insecure individuals

can vary (Ginsburg et al. 2019). In the United States, there are two primary forms of food aid, federal programs, and charitable groups. Federal Food Assistance programs include but are not limited to Supplemental Food Assistance Program (SNAP), The Emergency Food Assistance Program (TEFAP), Women, Infants, and Children (WIC), and The National School Lunch Program (NSLP). Charitable Food Assistance groups include but are not limited to the following: Feeding America, No Kid Hungry, food banks, soup kitchens, and food pantries.

Under Federal civil rights law and the U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its agencies, offices, employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by the USDA (U.S. Department of Agriculture n.d.). The federal food assistance programs must abide by the non-discrimination statement. However, not all charitable food assistance groups, such as food pantries, receive federal funding or partner with a federal agency and therefore do not have to abide by the non-discrimination statement. Since nearly all the non-federally funded food pantries are not subject to anti-discrimination regulations, there could be bias towards or against community segments. While all supplemental food programs aim to enhance food security, those who act autonomously could intentionally or unintentionally discriminate against specific food-insecure individuals. The non-discrimination statement serves as a safety net for SNAP, NSLP, TEFAP, WIC, and other programs from the federal government to ensure all participants can receive appropriate treatment or make a discrimination claim if applicable. However, many food pantries do not have such guidelines,

which allows those seeking supplemental assistance outside of the federal food programs through food pantries to be subject to potential discrimination.

In 1945, when the National School Lunch Program (NSLP) was established, the program stated, "lunches must be available to low-income students at no cost or reduced price without discrimination" (Ralston et al. 2008). Later in 1970, the program amended and claimed that the NSLP "prohibit[s] discrimination and overt identification of needy children" (Ralston et al. 2008). Even with non-discrimination policies, people who participate in these programs can still experience discrimination. Karnaze (2018) illustrated how schools that are implementing the NSLP could be stigmatizing students during lunchtime in two ways, "(1) the physical separation of paying and nonpaying students in the cafeteria, often resulting in de facto racial segregation, and (2) the practice of "shaming" students who are unable to pay for their meals." Most students who participate in the NSLP are minorities, and therefore brings into question, do the actions of these schools violate the Civil Rights Act of 1964 (Karnaze 2018). Since discrimination is present in federally protected programs designed to be observed under the eyes of justice, it is possible that discrimination can occur in non-regulated programs such as food pantries.

The Hunger in America study in 2014 was conducted using 58,000 food pantries, meal programs, and other food charity programs within the Feeding America network to understand better charitable food distribution in the U.S. (Feeding America). The study found that 62.4% of the food banks' agencies were faith-based, 28.4% were nonprofit or private organizations that were not faith-based, 2.7% were government agencies, 3.1% were community action programs, and 3.3% were other types of agencies (Feeding America 2014). Similarly, Riediger et al. (2022) found that of 3,777 food pantries surveyed, 2,388 (63.2%) were faith-based food pantries. While all food pantries have the same goal, alleviating food insecurity, the different missions of each

food pantry could lead to discrimination for various demographic groups which may not follow/prescribe to a specific food pantry mission.

Russomanno, Patterson, and Jabson (2019) conducted an interview-based study regarding food insecurity in transgender and gender nonconforming (TGNC) people in the Southeast region of the United States. The study found that TGNC people "feared experiencing community-level minority stress in the form of gender-based discrimination from conservative or anti-LGBT religious groups who organize food pantries" (Russomanno, Patterson, and Jabson 2019). Again, it is likely that these religious-based food pantries want to help all community members; this reluctance of the TGNC community to use religious-based food pantries could be viewed as an endogenous barrier to highly affect participation and is represented in Table 1 below.

Survey research on supplemental food assistance from food pantries focuses on logistical barriers, such as lack of transportation, information, need, and access, according to Fong, Wright, and Wimer (2016). However, there is a lack of research on what food pantry users experience from their food pantry and how those experiences could be barriers to other food-insecure individuals. McGuire et al. (2011) found that 65% of food-insecure households who were aware of a food pantry in their community chose to refrain from using it. Food insecure individuals may not utilize a food pantry because of the lack of information or consistency from a food pantry, lack of access, or even stigma in visiting food pantries (Fong, Wright, and Wimer 2016). Low-income individuals could be informed of a local food pantry, could visit for assistance, and yet still not accept the service for many reasons, including but not limited to social stigma or other internalized thoughts convincing them not to visit (Wimer, Wright, and Fong 2013). Because most food pantries are not federally regulated, which would ensure fair access to all,

there may be a hesitancy to visit specific food pantries if they have a clear mission that conflicts with the views of a potential user.

People who utilize food pantries may have similar feelings of shame and embarrassment. Purdam, Garratt, and Esmail (2016) studied social stigma and embarrassment in using food pantries in the U.K. and found that "all interviewees suggested that they had hesitated before coming to the food bank and most had felt a sense of embarrassment" (food pantries in the U.K. are called food banks). Additional interview-based studies support the findings that people who utilize food pantries experience humiliation, shame, or embarrassment (Hobbs et al. 1993; Hamelin, Habicht, and Beaudry 1999; Tarasuk and Beaton 1999). Stigma and feelings of embarrassment, guilt, or shame are encompassed around the idea of food pantries in general, regardless of use.

Douglas et al. (2015) found that factors driving the use of food pantries were motivated by either financial shocks/changes in personal circumstances or existing life circumstances. Sudden economic shocks and changes to personal circumstances included the loss of a job, becoming ill, or losing a home (Douglas et al. 2015). Existing life circumstances include chronic illness, current or past issues with drug or alcohol use, or previous convictions with the law (Douglas et al. 2015). According to a study by Kicinski (2012), the median length of time for food pantry use for individuals was 22 months. The mean length of food pantry usage was 66 months because users who had utilized food pantries for extended amounts of time, ten or more years (Kicinski 2012).

Ginsburg et al. (2019) studied food pantry access in the Bronx, NY. They found that 68% of food pantries had some form of exogenous barrier to participation in the form of documentation for access such as photo I.D., utility bill, shelter letter, pay stub, proof of address,

birth certificate, and Medicare or Medicaid card. These can be viewed as exogenous barriers to participation and will be the primary focus of this study. The remaining 32% of food pantries did not require documentation (Ginsberg et al. 2019). In New York state, it is prohibited for food pantries to only provide food assistance after attending a religious service; however, this study shared that "one pastor said explicitly that his church runs the pantry as a way to proselytize: to have people listen to the church's message as a means to an end" (Ginsberg et al. 2019). Even though there are state regulations in specific states against this type of food pantry eligibility, people who do not follow the mission of this church can face exogenous barriers to participation. Similarly, Gany et al. (2013) found that in their study of New York food pantries, 62% had an identification requirement in which 21% of clients were required to provide a government-issued photo I.D. According to the New York State Department of Motor Vehicles website, to obtain a non-driver ID, you must have the following; 1) proof of birth (one of the following, valid U.S. passport, passport card, U.S. birth certificate, foreign passport, certificate of naturalization or citizenship, U.S. employment authorization card, permanent resident card, etc.), 2) U.S. Social Security card, and 3) proof of New York state residency, choose 2 (NY state driver's license, permit, or non-driver ID, bank statement, utility bill, U.S. high school photo ID card with report card, U.S. computer printed pay stub, etc.). Other required documentation mentioned by clients to use food pantries included documents that could show proof of income or residency; in contrast, some clients indicated that the food pantry they visited did not require any documentation (Gany et al. 2013). Various food pantries across the U.S. require a photo I.D., proof of address, Social Security number, or birth certificate for clients to receive food, according to their websites (Franklin Food Bank n.d.; The Salvation Army Mississippi Gulf Coast n.d.; St. Vincent de Paul Place n.d.; UAMS Northwest 2020). The range of documentation

requirements from food pantries adds to the complexity of understanding these organizations and how people's access to food pantries could be limited based on many exogenous factors outside of simply needing food assistance.

This study focuses on the commonly required documentation for food pantry users; home address, place of employment, household size, driver's license, Social Security card, blood test, or other, all of which can be viewed as exogenous barriers to participation. While endogenous "soft" barriers such as embarrassment can deter participation in food pantries, this study focuses on the exogenous "hard" barriers to participation, such as having to provide documentation of income, citizenship, residency, etc.

A common exogenous barrier to participation in a food pantry is the requirement of a driver's license or state-issued identification. To acquire a driver's license (excluding the increased requirements for a REAL ID) in the state of Arkansas, according to the Department of Finance and Administration website, an individual must provide the following documents; 1) proof of legal presence for U.S. citizens, a U.S. passport, U.S. birth certificate, or certificate of birth abroad, naturalization, or citizenship, 2) only for noncitizens, a foreign passport with valid U.S. visa, resident alien card, or valid employment authorization, 3) Social Security number, a Social Security card, W-2 tax form, 1099 tax form, etc., 4) proof of identity, a current driver's license/ID, school identification card, tax return within one year, marriage certificate or license, pension, etc. As shown in Table 1, some of the LGBTQ+ community could be affected by food pantries requiring a driver's license given that their driver's license may not accurately represent their gender, and many transgender or nonconforming individuals experience "I.D. anxiety" (Tobia 2017). According to Table 1, low-income individuals could be affected by food pantries requiring a driver's license due to low-income individuals being less likely to have state-issued

photo identification. Perez (2015) found that "12% of adults living in a household with less than $25,000 annual income lack photo I.D.". The disparity could result from all the documentation requirements needed to obtain a photo ID and the time and resources it could take to obtain them. Table 1 shows that single mothers could be affected by food pantries requiring a driver's license because some single mothers have reported that they rely on public transportation because they do not know how to drive, do not have access to driver's education, or could not afford the expenses to own a car (Pittsburg Foundation 2019). Again, it is unlikely that most food pantries require a state-issued ID because they are trying to discriminate against one segment of the population; the reality is that there are exogenous barriers for portions of the food-insecure population to obtain such an ID.

Table 1 is a brief representation of various demographic groups who may visit a food pantry and how specific documentation, referred to as barriers, may affect them (low, medium, or high). Required documentation to participate in food collection can be identified as a barrier to entry because it could be viewed as an impediment to a segment of clients.

Table 1. Potential Effect of Barriers on Specific Population Groups in Food Pantry Participation

	Barriers						
	Exogenous						Endogenous
Population Groups:	Household Size	Home Address	Place of Employment	Social Security Card	Blood Test	Driver's License	Religious Affiliated Pantry
Homeless (Non-Sheltered)	low	high	high	medium	high	medium	medium
LGBTQ+	low	low	low	low	high	low/medium	high
Low-Income	medium	medium	low	low	high	medium	medium
Single Mothers	low	low	low	low	high	medium	medium
Undocumented Noncitizen	high	high	high	high	high	high	medium

Another common exogenous barrier to food pantry access is a Social Security card. Generally, to acquire a Social Security number/card for the first time in the U.S., one must be a citizen or an authorized noncitizen to work in the United States. The official Social Security

Administration website states that if one is a citizen, one must provide the following: 1) proof of citizenship, a U.S. birth certificate or U.S. passport, 2) proof of identity, a U.S. driver's license, state-issued non-driver identification card, birth certificate, employee identification card, school identification card, health insurance card, or U.S. military identification card. One must provide at least two different forms of identification in total. Suppose one is a noncitizen applying for a Social Security number. In that case, one must provide the following: 1) immigration status, a work permit, lawful permanent resident card, foreign passport, or admissions stamp in an unexpired foreign passport, 2) work eligibility, an I-94 form (arrival/departure record), or work permit, 3) evidence of employment, a letter that has the job, employment start date, number of hours you will be working, supervisor's name, phone number, and the supervisor's dated signature on the letter, 4) proof of age, a foreign birth certificate, foreign passport, or a Department of Human Services issued document, 5) proof of identity, a permanent resident card, arrival/departure record with a foreign passport, or work permit from Department of Human Services (Social Security Administration n.d.). Suppose a Social Security card needed to be replaced. In that case, one must provide 1) proof of citizenship, a U.S. birth certificate or U.S. passport, 2) proof of identity, a U.S. driver's license, state-issued non-driver identification card, U.S. passport, employee identification card, school identification card, health insurance card, or U.S. military identification card (Social Security Administration n.d.). All documents used in personal identification for a driver's license, first-time Social Security card, or replacement Social Security card must be valid.

Table 1 illustrates that food pantries that require a Social Security card could negatively affect the homeless population, given their living situations where forms of personal identification could be invalid, stolen, or lost, and obtaining a new one could be challenging

given the concept of "you need I.D. to get I.D." explained in Sanders et al. (2020). Table 1 shows that undocumented noncitizens would be affected by food pantries that require a Social Security number or a driver's license for participation could make undocumented noncitizens ineligible, or authorized noncitizens who chose not to go through the lengthy process to obtain a Social Security number or driver's license could also be ineligible.

Another common requirement for access to a food pantry is a home address/proof of residency of a participant. Providing a home address, utility bill, lease agreement, or other documentation showing proof of residency for food pantry use could be a barrier to entry for low-income individuals living with someone else or not paying bills where their name is present, as shown in Table 1. Table 1 displays that food pantries that require a home address or proof of residency could affect undocumented noncitizens as they may fear being reported to federal authorities. It also highly affects non-sheltered homeless people, who may not have a consistent residence to report to obtain official documentation.

Additionally, food pantries could require proof of a place of employment. Meyer et al. (2021) reported that 40% of the unsheltered homeless population in the U.S. were employed either full or part-time, meaning the remaining 60% of the unsheltered homeless population would not have a place of employment to report to be eligible for some food pantries. Food pantries that require a place of employment information would highly affect the unsheltered homeless population represented in Table 1. Undocumented non-citizens could be highly affected, as shown in Table 1, by food pantries requiring a place of employment because they could be hesitant, or fear being reported to federal authorities. According to the U.S. Bureau of Labor Statistics website, in January 2023, there were 5.7 million unemployed individuals, and food pantries requiring employment information could significantly affect those currently

unemployed and needing food resources. By definition, those unemployed are likely to be some of the neediest regarding food insecurity.

Another barrier to participation in a food pantry is proving household size. Household sizes required by food pantries could be used to give the proper ratio of food for a household or pantry records. However, it could significantly affect undocumented noncitizens, as represented in Table 1, as they could experience hesitation or fear of being reported to federal authorities by providing information about their household. Low-income individuals could fear that their leases may not be suited for the household size requested or could experience hesitation in providing household information as living arrangements could be complicated, represented by this barrier's effect in Table 1.

Blood testing is a less common but existing barrier to food pantries. Table 1 represents food pantries that require blood testing and could highly affect all population groups; non-sheltered homeless, LGBTQ+, low-income, single mothers, and undocumented noncitizens due to the time and resources that would go into an individual obtaining a blood test. McCarty et al. (2016) explained that states were permitted to drug-test recipients of the Temporary Assistance for Needy Families (TANF) program, and while "SNAP law does not explicitly address drug testing but given the way that SNAP and TANF law interact state TANF drug testing policies may affect SNAP participants." According to The Center for Law and Social Policy website, in 2019, at least 13 states had policies for TANF recipients in screening for the possibility of illicit substance use, and dependent on the results from screening, chemical drug testing could be done; there have been attempts by states to apply these drug screening policies into other programs such as SNAP, Unemployment Insurance, and Medicaid (Thompson 2019). Further, this could discriminate against those with drug problems who are food insecure.

While existing literature (Taniey and Leyden 2022; Bacon and Baker 2017; Bucknum and Bentzel 2019) highlight the benefits of using food pantries to aid in alleviating hunger and endogenous reasons why people may not participate (El Zein et al. 2018; Fong, Wright, and Wimer 2016; Russomanno, Patterson, and Jabson 2019), there is a lack of knowledge regarding which exogenous barriers may be prevalent that prevents specific individuals who have a demand for the services of food pantries from participating. Documentation requirements could be required for a pantry's funding and are likely put in place not to discriminate but result in some people being turned away. These exogenous barriers can further marginalize groups already excluded in our society's social, educational, economic, or cultural parts. This study is the first attempt to explore documentation-based barriers to entry enacted by food pantries and how these barriers could affect demographic groups differently—in addition, to discuss the possibility of discrimination occurring in food pantries for different demographic groups.

This study furthers the understanding of the complex system of food pantries and sparks the conversation of how food pantries could provide better aid in accessibility for equitable food assistance. Although food pantries have the noble goal of aiding in reducing food insecurity, an individual’s access and barriers to using a food pantry could differ in the current non-regulated system. Educating food pantries, researchers, and others regarding the impact of documentation requirements could help to enact change to better reach underserved demographic populations, including but not limited to minorities of gender, religion/non-religion, homeless, low-income, or immigration status.

This study sets out to prompt future research in understanding why food insecure individuals may not be obtaining the food resources they need, further the understanding of what

food pantry access looks like, and how food pantries could continue to expand their outreach to groups who may be in the greatest need of food assistance.

2. Data and Methodology

2.1. Data Collection

This study utilized an online survey conducted in the summer of 2022. The survey sought low-income adult individuals across the United States who participated in food collection from a food pantry in the previous month. The survey defined low income as at or below 200% of the federal poverty level for their given household size.

To determine if respondents were classified as low-income, they were asked their household size, and based on the selected quantity, they were presented with a corresponding income question to identify if they were within the 200% of the federal poverty level threshold. If respondents selected that their income was "Definitely above" or "Probably above" the amount presented, they were screened out for not being classified as low-income at or below 200% of the federal poverty level. Figure 1 was the income screening question for a four-person household. Any other household size, for example, a two-person household, would see a different amount for the income shown in Figure 1.

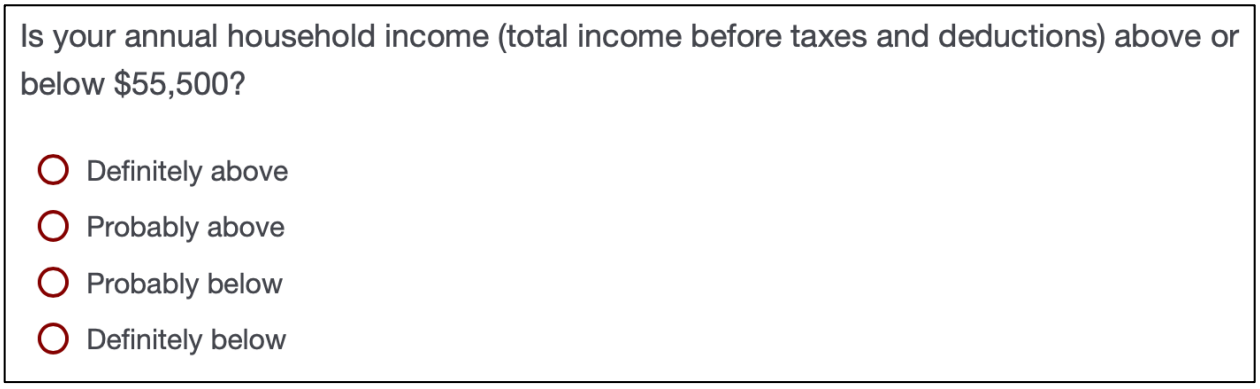

Figure 1. Example Income Screening Question for Low-Income Classification for a Four-Person Household

The survey was created using Qualtrics, pre-tested, and subsequently administered by Dynata and recruited participants within their U.S. consumer survey database. The University of Arkansas Internal review board (IRB) approved the survey on 03/17/2022 (protocol number 2201383047). Participants were provided with a written consent form they had to agree to before the beginning of the survey, which stated they could quit the study at any time. The survey was anonymous, and participants received no payment for completion.

The complete survey is found in Appendix A. The survey begins with screening questions to ensure respondents were at least 18, classified as low-income and used a food pantry in the past month, then demographic questions followed. Within the survey, respondents were asked if, in the last month, anyone in their household received benefits from SNAP or WIC, did the pantry they participated in have fresh produce available, how many times where they were allowed to visit the pantry, did the pantry have hot meals or ready-to-eat items, information was collected when they visited the pantry, age, gender, race/ethnicities, marital status, highest completed education, and household annual total gross income.

Dynata launched the survey on April 29, 2022, and collection ended on May 31, 2022. A total of 4,389 responses were received; however, respondents who did not consent to the survey (3.71%), commit to provide thoughtful or accurate responses (0.91%), were not at least 18 years old (0.77%), incomplete responses (4.51%), or were not considered low-income (42.83%), were removed from the data set. Of the remaining 2,074 responses, 69.86% were removed from the data set because respondents did not use a food pantry in the past thirty days. The final data sample consisted of 625 usable responses.

2.2. Low vs. High Barrier Ranking

Figure 2 presents the question that each participant was shown regarding what documentation (barriers) were needed, if any, to participate in the last food pantry they visited.

Figure 2. Example Question for Participants Regarding Requirements for Food Pantry Participation

Barriers to participation in a food pantry were classified into "low" and "high" categories. The low barrier category was defined as less than three required pieces of information collected from the respondent's food pantry visit (Figure 2). High barriers were defined as three or more barriers experienced by a respondent. Less than three barriers were selected as the low barrier category because two of the seven options often do not require validation (home address and household size). By definition, if a participant had to show three pieces of information from Figure 2, it included either place of employment, Social Security card, driver's license, or blood testing, all of which require documents that may prevent participation in the respective food pantry. If respondents experienced zero barriers, they could indicate so in the "other" fill-in-the-blank option.

2.3. County Political Affiliation

In recent political campaigns, the Republican party appears less apt to support funding for support services/programs (Bergh and Rosenbaum 2023; Huppke 2023; Goldstein 2023; National Low Income Housing Coalition 2023; Hulse and Edmondson 2023) for domestic supplemental food programs. This could result in two outcomes for barriers to food pantry participation. Either Republican counties had more barriers to participation because of historical voting against increased funding to food aid or fewer barriers as Republican counties may rally around the food pantries they have since there may be less state aid to support food aid. This study used the 2020 Presidential election county-level election results to see any relationships between county election results and barriers for food pantry users. Election data was calculated based on which party had the majority of votes for the Presidential election in each county's FIPS code. Each respondent was assigned a county FIPS code based on the latitude and longitude coordinates of where they took the survey. Then the county election results were paired with the corresponding FIPS codes of respondents.

2.4. Demographics

Gender options in this study included male, female, transfemale, transmale, and gender variant or non-conforming, a total of five gender-independent variables. Previous studies have shown that women are historically more likely to be food insecure than men (Broussard 2019; Patterson, Russomanno, and Tree 2020; Grimaccia and Naccarato 2022), and the transgender and gender non-conforming community (TGNC) experience higher rates of poverty, joblessness, and homelessness, which are drivers of food insecurity (Russomanno, Patterson, and Jabson 2019).

Given the disproportionate effects that gender can have on food insecurity rates, this study assesses if disparity also occurs across all gender groups.

Race options in this study included White, Black, Hispanic/Latino, Native Hawaii/Pacific Islander, American Indian/Alaskan Native, and Asian. If a respondent identified as two or more races/ethnicities, they were coded as "Mixed," resulting in seven race-independent variables. Previous research has found that minorities in the United States have a higher prevalence of food pantry usage (Marriott 2022; Guo and Huang 2021) and experience food insecurity at a higher rate than White Americans (Myers and Painter 2017; Walker et al. 2021; Rice 2021; Franklin et al. 2012). With this knowledge, this study evaluates if minority groups with the historically highest usage and most significant need of food pantries experience more barriers than white individuals, in which case, food pantries may be more challenging to participate in for a population that needs it the most.

According to the Arkansas Department of Human Services website, SNAP eligibility in 2023 for the state of Arkansas includes eight requirements, 1) residency/citizenship (program is limited to U.S. citizens and certain legally admitted non-citizens), 2) lawful SNAP household (individuals who live together must purchase food and prepare meals together), 3) work registration (all able bodied individuals from age 16-59 who are not otherwise exempt must register for work), 4) requirement to work (all able-bodied adults between the ages of 18 through 49 who are not pregnant or the parent of a minor dependent child must work at least twenty hours per week or participate in a work program), 5) resources (the value of non-exempt resources cannot exceed $3,500 for households with at least one member age 60 or older or disabled, the resource limit is $2,250 for all other households), 6) Social Security Number (each household member who wishes to participate in the program is required to provide a SSN or to

apply for one before they are allowed to participate), 7) cooperation with child support (cooperation means parents must provide the complete information or taken the necessary actions to obtain support for dependent children), and 8) income (households containing an individual with disability member or a member age 60 or older must have a net income at or below 100% of the federal poverty guidelines, all other households must have both a gross income at or below 130% of the federal poverty guidelines and a net income at or below 100% of the federal poverty guidelines). SNAP program households experience food insecurity (Clay and Rogus 2021) and pantry use at a higher rate than non-SNAP households; however, non-SNAP households had a more significant change in food insecurity and pantry usage during the beginning of the COVID-19 pandemic (Harper et al. 2022). Given the complicated impact the pandemic has had on households, this study evaluates if those who utilize SNAP experience higher or lower barriers than non-SNAP respondents.

2.5. Econometric Analysis

This study aims to assess the probability of being in either a low or high barriers group to food pantry participation; thus, we implemented a probit model.

A binary probit regression was utilized across varying models specified as:

$$Pr(Y = 1) = \phi(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k) \quad (1)$$

where $Pr(Y = 1)$ is the probability that the dependent variable, barriers, take the value of 1 if low barrier (less than 3), else 0 if high barrier (3 or more), ϕ is the standard normal cumulative distribution function, β_0 is the intercept coefficient, $\beta_1, \beta_2, \dots, \beta_k$ are the coefficients of the independent variables $X_1, X_2, \dots, X_k$, respectively. Multiple iterations of equation one were run using exhaustive combinations of the independent variables described above. Coefficients from

the model iterations run from equation one were used to calculate the marginal effect at the mean for each variable within the model and calculated as:

$$ME_j = f(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k) * \beta_j \quad (2)$$

where ME is the marginal effect of the independent variable j on the probability of the dependent variable, low barriers, taking the value of 1, and β_j is the coefficient of the independent variable j.

3. Results

3.1. Frequency of Barriers

Table 2 summarizes the barriers to food pantry participation relative to different demographic groups. The possible number of barriers in this study (shown in Table 2) ranged from zero to six. African American food pantry participants experienced the highest number of barriers relative to other races, with 2.7 barriers on average to participate in their last food pantry visit, shown in Table 2. American Indian/Alaskan Native and Mixed food pantry participants experienced 2.6 barriers on average to participate in their previous food pantry visit. Table 2 indicated that African American and Mixed (two or more races) food pantry participants experienced the highest number of barriers to participation during their last food pantry visit available in the survey, six. White, American Indian/Alaskan Native, and Asian food pantry participants experienced a maximum of five barriers participating in their last food pantry visit (Table 2). Further, Table 2 shows that Hispanic/Latino food pantry participants experienced a maximum of 4 barriers participating in their last food pantry visit, and Native Hawaii/Pacific Islander food pantry participants experienced a maximum of 2 barriers participating in their previous food pantry visit. These results highlight the disparities in the barriers experienced by food pantry participants of various races.

Table 2 demonstrates that female food pantry participants, on average, experienced 2.5 barriers to participation during their last food pantry visit, whereas male food pantry participants, on average experienced 2.3 barriers. A minuscule number of male (1 respondent out of 192) and female (2 respondents out of 492) food pantry participants experienced the maximum number of barriers participating in their last food pantry visit available in the survey, six. A two-sample t-test of the average number of barriers of female versus male respondents supported that the average number of barriers for female respondents is statistically greater than that for male respondents.

Table 2 shows that divorced food pantry participants, on average, experienced the highest number of barriers to participation during their last food pantry visit: for the marital status category, 2.6 barriers on average for food pantry participation. On average, married, widowed, and separated food pantry participants experienced 2.5 barriers during their last visit, as shown in Table 2. Single food pantry participants experienced the lowest number of barriers, 2.2 on average, to participate in their previous food pantry visit (Table 2).

Table 2 illustrates that food pantry participants in Republican counties, on average experienced 2.5 barriers to participation in their last food pantry visit, and similarly, food pantry participants in Democratic counties, on average, experienced 2.4 barriers to participation in their previous food pantry visit. In addition, small amounts of both food pantry participants in Republican (2 respondents out of 296) and Democratic (1 respondent out of 329) counties experienced the maximum number of barriers to food pantry participation in the survey, six (Table 2). A one-sample t-test of the average number of barriers of respondents living in Democratic counties versus Republican counties found that the average number of barriers for respondents in Democratic counties is not statistically ($P>0.1$) smaller than those of respondents

in Republican Counties. Therefore, there is no statistical difference between the average barriers experienced by respondents in Democratic and Republican counties.

Table 2 shows that the four lowest income ranges of food pantry participants experienced a range of 2.2-2.5 barriers on average to participate in their last food pantry visit, whereas the three highest income ranges of food pantry participants experienced a range of 2-3 barriers on average to participate in their previous food pantry visit. The four lowest income ranges capture 85% of the total observations of the survey. To reiterate, all participants in the survey are low-income at 200% of the federal poverty line, so while high-income ranges are shown in Table 2, all participants are within the low-income threshold.

Table 2 highlights that, on average, SNAP users who are food pantry participants experienced 2.5 barriers to participation during their food pantry visit. In contrast, non-SNAP users who are food pantry participants experienced 2.2 barriers. Although there appears to be a slight difference in the average of barriers to participation by SNAP users versus non-SNAP users, a one-sample t-test found that the average number of barriers for SNAP respondents is not statistically smaller than the average number of barriers for non-SNAP respondents, meaning there is no statistical difference between the average barriers experienced for SNAP respondents and non-SNAP respondents.

Table 2. The Average Number of Barriers to Participation in the Last Food Pantry Visit by Survey Participants

	Average Number of Barriers	Standard Deviation	Min	Max	Total Observations
Pooled:	2.4	1.2	0	6	625
Race[A]:					
White	2.4	1.2	0	5	350
African American	2.7	0.9	0	6	108
American Indian or Alaskan Native	2.6	1.4	1	5	7
Asian	2.0	1.4	0	5	20
Native Hawaii or Pacific Islander	1.7	0.6	1	2	3
Hispanic or Latino	1.9	1.2	0	4	51
Mixed (2 or more races)	2.6	1.4	0	6	86
Gender[B]:					
Female	2.5	1.2	0	6	424
Male	2.3	1.3	0	6	192
Transfemale	N/A	N/A	N/A	N/A	1
Transmale	3	0.8	2	4	3
Gender Variant or Non-Conforming	2.4	1.5	1	5	5
Marital Status:					
Single	2.2	1.3	0	6	207
Married	2.5	1.1	0	6	259
Widowed	2.5	1.3	1	5	33
Divorced	2.6	1.3	0	5	90
Separated	2.5	1.2	0	5	36
2020 Presidential Election County-Level Results[C]:					
Democrat	2.4	1.2	0	6	329
Republican	2.5	1.3	0	6	296
Income:					
Less than $20,000	2.4	1.3	0	6	242
$20,000-$39,999	2.4	1.3	0	5	223
$40,000-$59,999	2.5	1.5	0	6	55
$60,000-$79,999	2.2	0.7	1	3	12
$80,000-$99,999	1.7	0.6	1	2	3
$100,000-$119,000	1.7	0.9	1	3	16
$120,000-$139,999	2.0	0.0	2	2	10
$140,000-$159,999	2.9	0.5	1	4	63
More than $160,000	3.0	N/A	3	3	1

Table 2. (Cont.)

	Average Number of Barriers	Standard Deviation	Min	Max	Total Observations
SNAP User in the Past 30 Days[D]:					
Yes	2.5	1.2	0	6	447
No	2.2	1.3	0	5	178

*Note: one-sample one-tailed t-tests by race support that, on average, each respondent sub-group experienced "low barriers" (less than three).
Race[A]: two-sample t-test of the average number of barriers of White versus African American respondents supported that the average number of barriers for White respondents is statistically smaller than that for African American respondents (p-value of 0.007).
Gender[B]: two sample t-test of the average number of barriers of female versus male respondents supported that the average number of barriers for female respondents are statistically greater than that for male respondents (p-value of 0.03).
2020 Presidential Election County-Level Results[C]: one-sample t-test of the average number of barriers of respondents living in Democratic counties versus Republican counties supported that the average number of barriers for respondents in Democratic counties is not statistically smaller than the average number of barriers for respondents in Republican Counties (p-value of 0.09).
SNAP User in the Past 30 Days[D]: one-sample t-test of the average number of barriers of respondents who utilize SNAP versus Non-SNAP respondents found that the average number of barriers for SNAP respondents is not statistically smaller than the average number of barriers for non-SNAP respondents (p-value of 0.99).

Table 3 illustrates the occurrence of each barrier to using a food pantry by race. Table 3 highlights that 56% of African American food pantry participants had to provide their Social Security card during their last visit to their local food pantry. In contrast, only 21% of White, 29% of Mixed, 14% of Hispanic/Latino, 15% of Asian, and 14% of American Indian/Alaskan Native respondents had to provide theirs. Four two-sample t-tests were conducted to see if the percentage of African American food pantry participants who experienced a Social Security card as a barrier to food pantry participation was greater than that of other races with sufficient observations (including White, Mixed, Hispanic/Latino, and Asian respondents). The results of the t-testing supported that the percentage of African American respondents who experienced a Social Security card as a barrier to food pantry participation, 56%, is significantly greater than that of White (21%), Mixed (29%), Hispanic/Latino (14%), and Asian (15%) respondents. There could be some selection bias amongst the undocumented Hispanic/Latino community where individuals know which food pantries require federal documentation for participation and choose

not to frequent those operations. Regardless, food pantries requiring clients to provide Social Security cards to participate in food collection are creating more than one barrier from the Social Security card itself. It takes a minimum of two officially validated documents to obtain a Social Security card; therefore, pantries that require a Social Security card may appear as enforcing one barrier but creates three barriers to utilize a pantry, the Social Security card itself and the two documents to obtain the card in the first place. As a result, the additional barriers to food pantry participation created by food pantries requiring a Social Security card alone could further distort food assistance services from food-insecure populations.

In addition, 57% of American Indian/Alaskan Native food pantry participants had to provide their driver's license during their visit to their local food pantry, whereas 48% of White, 31% of African American, 40% of Asian, 41% of Hispanic/Latino, and 51% of Mixed food pantry participants had to provide theirs. American Indian/Alaskan Native and Native Hawaii/Pacific Islander food pantry participants had too few observations to be included in t-testing, so the following highest percentage by race who experienced a driver's license barrier was selected for t-testing, Mixed respondents (51%) versus the remaining races to see if the difference in percentages of respondents by race for the driver's license barrier is significant. Four individual two-sample t-tests of the percentage of Mixed respondents that experienced driver's license as a barrier to food pantry participation versus respondents of different races (including White, Asian, Hispanic/Latino, and African American) support that the percentage of Mixed respondents that experienced a driver's license as a barrier to food pantry participation is significantly greater than that of only African American (31%) respondents. The remaining three t-tests revealed that the percentage of Mixed respondents (51%) who experienced a driver's license as a barrier to food pantry participation was not statistically greater than that of White

(48%), Asian (40%), and Hispanic/Latino (41%) respondents, meaning there is no statistical difference between the percentage of Mixed versus White, Asian, and Hispanic/Latino respondents who experienced a driver's license as a barrier to food pantry participation, even though there appear to be differences in the percentages shown in Table 3. Driver's license requirements can be challenging for specific population groups (homeless, low-income, undocumented noncitizens, LGBTQ+ community, etc.) due to the time, resources, and documentation required to obtain the driver's license. It takes a minimum of two officially validated documents to get a driver's license, so a pantry that requires a driver's license may appear as one barrier, but is three barriers, the driver's license itself and the two documents to obtain the license in the first place.

Further, 60% of African American food pantry participants had to provide a place of employment during their last visit to their local food pantry. In contrast, only 21% of White, 14% of American Indian/Alaskan Native, 25% of Asian, 16% of Hispanic/Latino, and 27% of Mixed food pantry participants had to provide theirs. Four individual two-sample t-tests of the percentage of African American respondents that experienced place of employment as a barrier to food pantry participation versus respondents of different races (including White, Asian, Hispanic/Latino, and Mixed) support that the percentage of African American respondents (60%) that experienced place of employment as a barrier to food pantry participation is significantly greater than that of White (21%), Asian (25%), Hispanic/Latino (16%), and Mixed (27%) respondents. Food pantries that require a place of employment by clients to receive food collection could also have adverse effects on particular population groups (homeless, unemployed, undocumented noncitizens, etc.) given that these groups may not have employment

or the documentation to prove it all together, further creating difficulty for already high-risk food insecure populations.

Table 3. Food Pantry Barriers Frequency by Type and Race

	White	African American	American Indian or Alaskan Native	Asian	Native Hawaii or Pacific Islander	Hispanic or Latino	Mixed
Zero Barriers	12	1	-	2	-	2	4
	(3.43)	(0.93)	-	(10.00)	-	(3.92)	(4.65)
Home Address	277	98	6	12	3	36	61
	(79.14)	(90.74)	(85.71)	(60.00)	(100)	(70.59)	(70.93)
Place of Employment[A]	73	65	1	5	-	8	23
	(20.86)	(60.19)	(14.29)	(25.00)	-	(15.69)	(26.74)
Social Security Card[B]	73	60	1	3	-	7	25
	(20.86)	(55.56)	(14.29)	(15.00)	-	(13.73)	(29.07)
Driver's License[C]	169	33	4	8	-	21	44
	(48.29)	(30.56)	(57.14)	(40.00)	-	(41.18)	(51.16)
Household Size	233	31	6	11	2	22	63
	(66.57)	(28.70)	(85.71)	(55.00)	(66.67)	(43.14)	(73.26)
Blood Test	1	1	-	-	-	-	2
	(0.29)	(0.93)	-	-	-	-	(2.33)
Other	9	1	-	-	-	3	8
	(2.57)	(0.93)	-	-	-	(5.88)	(9.30)
Total Observations	350	108	7	20	3	51	86

Barrier occurrence in percentage by total race observations in parentheses

Place of Employment[A]: Four separate two-sample t-tests of the percentage of African American respondents that experienced place of employment as a barrier to food pantry participation versus White, Asian, Hispanic/Latino, and Mixed respondents supports that the percentage of African American respondents that experienced place of employment as a barrier to food pantry participation is significantly greater than that of White, Asian, Hispanic/Latino, and Mixed respondents (p-value <0.001 for each of the four t-tests).

Social Security Card[B]: Four separate two-sample t-tests of the percentage of African American respondents that experienced a Social Security card as a barrier to food pantry participation versus White, Mixed, Hispanic/Latino, and Asian respondents supported that the percentage of African American respondents that experienced a Social Security card as a barrier to food pantry participation is significantly greater than that of White, Mixed, and Hispanic/Latino (p-value < 0.001 for each of the three t-tests) respondents. The fourth t-test also supported that the percentage of African American respondents that experienced a Social Security card as a barrier to food pantry participation is significantly greater than that of Asian respondents (p-value <0.01).

Driver's License[C]: Four separate two-sample t-tests of the percentage of Mixed respondents that experienced driver's license as a barrier to food pantry participation versus White, Asian, Hispanic/Latino, and African American respondents reveals that the percentage of Mixed respondents that experienced driver's license as a barrier to food pantry participation is not significantly greater than that of White (p-value of 0.36), Asian (p-value of 0.25), and Hispanic/Latino (p-value of 0.17) respondents. The fourth t-test revealed that the percentage of Mixed respondents that experienced a driver's license as a barrier to food pantry participation is significantly greater than that of African American respondents (p-value <0.01).

3.2. Frequency of Barrier Combinations

Table 4 shows the breakdown of all the single, 2-item, and 3-item combinations of barriers to participation in a respondent's last food pantry visit by race. In Table 4, 168 food pantry participants (out of 625), or 27%, experienced only one barrier to participation during their last food pantry visit. Comparatively, 9% of African American food pantry participants within the survey experienced home address as their only barrier to food pantry participation, whereas 24% of Hispanic/Latino food pantry participants experienced home address as their only barrier. As shown in Table 4, the most common single barrier to participation in a respondent's last food pantry visit across all races (known as the pooled sample) was a home address; of all the barriers experienced by respondents, 11% of the respondents experienced home address as their only barrier. The most common single barrier to participation in a respondent's last food pantry visit for each race is as follows: home address for White (11%), African American (9%), American Indian/Alaskan Native (14%), Asian (20%), Native Hawaii/Pacific Islander (33%), Hispanic/Latino (24%), and household size for Mixed (8%), and American Indian/Alaskan Native (14%) food pantry participants.

Respondents included in the 2-item barrier occurrence only experienced one of the two-item combinations listed in Table 4. Table 4 indicated that 155 food pantry participants (out of 625), or 24%, experienced a two-item combination of barriers to participation during the respondent's last food pantry visit. Table 4 shows that 67% of Native Hawaii/Pacific Islander food pantry participants experienced the two-item barrier combination of home address and household size, whereas 17% of White, 6% of African American, 14% of American Indian/Alaskan Native, 5% of Asian, 10% of Hispanic/Latino, and 13% of Mixed food pantry participants experienced this exact two-item combination during their last food pantry visit. The

most common two-item combination barrier to participation in a respondent's previous food pantry visit, across all races (known as the pooled sample) was home address and household size; of all of the barriers experienced by respondents, 14% of respondents experienced the two-item barrier combination of home address and household size as their only barriers. The most common two-item combination barrier to participation in a respondent's last food pantry visit for each race is as follows: home address and household size for White (17%), African American (6%), American Indian/Alaskan Native (14%), Asian (56%), Native Hawaii/Pacific Islander (67%), Hispanic/Latino (10%), Mixed (13%), American Indian/Alaskan Native (14%), and driver's license and household size for Asian (5%) food pantry participants. Some two-item barrier combinations are more restrictive than others; for example, home address and household size may not require official validation. However, the two-item barrier combination of driver's license and household size does. A minimum of two officially validated documents are required to obtain a driver's license, so if a respondent experiences the two-item barrier combination of driver's license and household size, they are potentially experiencing four barriers due to the concept that you need ID to get ID.

Table 4 highlights that 196 food pantry participants (out of 625), or 28%, experienced a three-item combination of barriers to participation in a respondent's last food pantry visit. Further, 44% of African American individuals within the survey experienced the three-item combination of home address, place of employment, and Social Security card, whereas 0% of White, American Indian/Alaskan Native, Asian, Native Hawaii/Pacific Islander, and Mixed respondents experienced this specific three-item combination. The most common three-item combination barrier to participation in a respondent's last food pantry visit, across all races (known as the pooled sample) was home address, driver's license, and household size

combination of all the barriers experienced by respondents, 13% of respondents experienced this specific three-item barrier combination as their only barriers. The most common three-item combination barrier to participation in a respondent's last food pantry visit for each race is as follows: home address, driver's license, and household size for White (16%), American Indian/Alaskan Native (43%), Asian (10%), Hispanic/Latino (12%), Mixed (13%), American Indian/Alaskan Native (43%), and home address, place of employment, and Social Security card for African American (44%) food pantry participants. Some three-item barrier combinations are more restrictive than others; for example, the three-item combination of home address, driver's license, and household size requires official validation to obtain a driver's license (a minimum of two officially validated documents). However, the three-item barrier combination of home address, driver's license, and Social Security card requires more officially validated documents (a minimum of two officially validated documents to obtain the driver's license and a minimum of two officially validated documents to obtain the Social Security card), in addition, more time and resources need to obtain the driver's license and Social Security card rather than just the driver's license alone.

Other combinations were present, such as four-item, five-item, etc., combinations; however, the single, two-item, and three-item barrier combinations accounted for 80% of barrier combinations experienced by respondents across all races (Table 4). Table 4 exhibits 81% of White, 94% African American, 86% of American Indian/Alaskan Native, 85% Asian, 100% of Native Hawaii/Pacific Islander, 88% Hispanic/Latino, and 75% of Mixed respondents by race, respectively are captured by single, two-item, and three-item barrier combinations.

Table 4. Barrier Combination Occurrence by Race

	Frequency	Pooled (%)	White (%)	African American (%)	American Indian or Alaskan Native (%)	Asian (%)	Native Hawaii or Pacific Islander (%)	Hispanic or Latino (%)	Mixed (%)
Single Barrier Occurrence:									
Home Address (HA)	70	11	11	9	14	20	33	24	6
Household Size (HHS)	42	7	7	2	14	10	-	8	8
Driver's License (DL)	25	4	5	2	-	5	-	6	2
No Barriers	17	3	3	1	-	10	-	4	3
Other (O)	7	1	1	1	-	-	-	6	-
Social Security Card (SSC)	4	1	1	-	-	-	-	2	1
Place of Employment (PE)	3	-	-	-	-	5	-	2	1
Blood Test (BT)	0	-	-	-	-	-	-	-	-
Total*	168[A]	27[B]	27	15	29	50	33	51	22
2-Item Combination Barrier Occurrence:									
HA & HHS	86	14	17	6	14	5	67	10	13
HA & DL	19	3	4	-	-	-	-	4	5
HA & PE	17	3	5	1	-	-	-	-	-
DL & HHS	8	1	1	1	-	5	-	-	1
HA & SSC	5	1	1	1	-	-	-	-	2
SSC & DL	5	1	-	2	-	-	-	-	2
HHS & O	4	1	-	-	-	-	-	-	3
PE & DL	2	-	1	-	-	-	-	-	-
PE & HHS	2	-	1	-	-	-	-	-	-
PE & SSC	2	-	-	-	-	-	-	-	1
SSC & HHS	2	-	-	1	-	-	-	-	-
DL & O	1	-	-	-	-	-	-	-	-
HA & O	1	-	-	-	-	-	-	-	-
PE & O	1	-	-	-	-	-	-	-	1
Total*	155[A]	24[B]	28	12	14	10	67	14	29

Table 4. (Cont.)

	Frequency	Pooled (%)	White (%)	African American (%)	American Indian or Alaskan Native (%)	Asian (%)	Native Hawaii or Pacific Islander (%)	Hispanic or Latino (%)	Mixed (%)
3-Item Combination Barrier Occurrence:									
HA, DL, & HHS	87	13	16	8	43	10	-	12	13
HA, PE, & SSC	49	8	-	44	-	-	-	2	-
HA, PE, & DL	15	2	-	11	-	-	-	4	-
HA, PE, & HHS	14	2	2	2	-	5	-	-	6
HA, SSC, & HHS	11	2	2	2	-	-	-	2	-
HA, SSC, & DL	9	1	2	-	-	5	-	-	-
HA, HHS, & O	3	-	1	-	-	-	-	-	-
SSC, DL, & HHS	3	-	-	-	-	-	-	-	2
DL, HHS, & O	1	-	-	-	-	-	-	-	-
HA, DL, & O	1	-	-	-	-	-	-	2	-
PE, DL, & HHS	1	-	-	-	-	-	-	2	-
PE, HHS, & O	1	-	-	-	-	-	-	-	1
PE, SSC, & HHS	1	-	-	-	-	5	-	-	-
Total*	196[A]	28[B]	23	67	43	25	0	24	22
Barriers Occurrence by Race (%)**			81	94	86	85	100	88	73
Barriers Captured (%)***	80								

[A] = summation of frequency by single, 2-item combination, or 3-item combination occurrence for the respective sample

[B] = summation of the pooled column by single, 2-item combination, or 3-item combination occurrence for the respective sample

* Values are the summation of columns by single, 2-item combination, or 3-item combination for respective sample, and by race, in terms of percentage

** Values are in terms of percentages and derived from (summation of single, 2-item combination, and 3-item combination frequency for respective sample by race / total observations by race)

*** Value derived from (summation of values[A] / 625)

3.3. Probit Regression Results

Table 5 illustrates the results from the five model specifications. Additional models were estimated, but the results presented in Table 5 were the most robust and deemed the preferred models. Alternative model specification results can be found in Appendix B.

Table 5. Probit Models Regression Results

Dependent Variable: Low Barriers (less than 3)	Model 1: White vs. Minority	Model 2: All Races	Model 3: All Genders	Model 4: African American Subset	Model 5: SNAP User Subset
Intercept	0.17*	0.37***	0.24**	0.85*	0.17*
	(0.07)	(0.11)	(0.09)	(-0.36)	(0.08)
Non-White	-0.30**				
	(0.10)				
Hispanic or Latino		0.19			0.07
		(0.19)			(0.24)
African American		-0.75***			-1.05***
		(0.15)			(0.17)
Native Hawaii or Pacific Islander		4.58			4.65
		(84.04)			(146.95)
Mixed (2 or more races)		-0.15			-0.21
		(0.15)			(0.18)
Asian		-0.04			-0.42
		(0.30)			(0.57)
American Indian or Alaskan Native		-0.32			-0.60
		(0.48)			(0.54)
Democrat				-0.73*	
				(-0.34)	
Female			-0.28*	-1.26***	
			(0.11)	(-0.31)	
Transfemale			-4.85		
			(92.13)		
Transmale			-0.67		
			(0.75)		
Gender Variant or Non-Conforming			0.02		
			(0.57)		
SNAP User in the Past 30 days		-0.28*			
		(0.12)			
AIC	861.18	836.33	867.25	106.22	586.11
n (sample size)	625	625	625	108	447

Standard error in parentheses
***p<0.001, **p<0.01, *p<0.05

Table 6. Marginal Effects from Various Probit Model Specifications

Dependent Variable: Low Barriers (less than 3)	Model 1: White vs. Minority	Model 2: All Races	Model 3: All Genders	Model 4: African American Subset	Model 5: SNAP User Subset
Non-White	-0.12**				
	(0.04)				
Hispanic or Latino		0.07			0.02
		(0.07)			(0.09)
African American		-0.28***			-0.38***
		(0.05)			(0.05)
Native Hawaii or Pacific Islander		1.72			1.70
		(31.60)			(53.80)
Mixed (2 or more races)		-0.06			-0.08
		(0.06)			(0.07)
Asian		-0.018			-0.16
		(0.11)			(0.21)
American Indian or Alaskan Native		-0.12			-0.22
		(0.18)			(0.20)
Democrat				-0.19*	
				-0.08	
Female			-0.11*	-0.32***	
			(0.04)	(0.06)	
Transfemale			-1.91		
			(36.33)		
Transmale			-0.26		
			(0.30)		
Gender Variant or Non-Conforming			0.01		
			(0.23)		
SNAP User in the Past 30 days		-0.11*			
		(0.04)			
n (sample size)	625	625	625	108	447

Standard error in parentheses
***p<0.001, **p<0.01, *p<0.05
*Note: Given the dependent variable is low barriers, the marginal effects interpretation for Model 1 would reveal that Non-White food pantry participants are 12% less likely to experience low (less than 3) barriers relative to White food pantry participants (P<0.01) when utilizing a food pantry. This would suggest that minorities face a greater likelihood of experiencing high barriers to food pantry participation on average. Given the complex nature of the marginal effects interpretations for all five models, the explained results below will be explained in terms of high barriers instead of low barriers.

Table 6 illustrates that in Model 1, respondents were categorized as either a White or Non-White (including Hispanic or Latino, African American, Native Hawaii or Pacific Islander, Mixed, Asian, and American Indian or Alaskan Native) to estimate the effect of being a minority

had on the number of barriers to participation needed to utilize a food pantry. Model 1 in Table 6 reveals that Non-White food pantry participants are 12% more likely to experience high (3 or more) barriers relative to White food pantry participants ($P<0.01$) when utilizing a food pantry. This would suggest that minorities face more barriers to participation in food pantries on average.

Within Table 6, Model 2 estimates how all races (including White, Hispanic or Latino, African American, Native Hawaii or Pacific Islander, Mixed, Asian, and American Indian or Alaskan Native) and SNAP Use (SNAP usage in the past thirty days, 1=yes, 0=no) impact barriers to food pantry participation. Model 2 shows that African American food pantry participants are 28% more likely to experience high barriers than White participants ($P<0.001$). The remaining races, Hispanic/Latino, Native Hawaii/Pacific Islander, Mixed, Asian, and American Indian/Alaskan Native respondents, were not statistically different from the White respondents' effect on the dependent variable, barriers, with the current observations from this survey. Table 6 also reveals that in Model 2, SNAP Users in the past 30 days are 11% more likely to experience high barriers to food pantry participation than non-SNAP users ($P<0.05$).

Model 3, presented in Table 6, estimates how all genders (including male, female, transfemale, transmale, and gender variant or non-conforming) affect barriers to food pantry participation. Model 3 reveals that female food pantry participants are 11% more likely to experience high barriers (three or more) than males ($P<0.05$), as shown in Table 6. The remaining genders, transfemale, transmale, and gender variant/non-conforming, were not statistically different from male respondents' effect on the dependent variable, barriers, with the current observations from this survey.

Model 4 in Table 6 is a subsample of only African American food pantry participants. The county-based results from the 2020 Presidential Election were calculated for each respondent, 1 representing a Democratic County majority and 0 representing a Republican County majority. This model estimates the probability that the dependent variable, barriers, takes the value of 1 if there is a low barrier (less than 3) or 0 if there is a high barrier (3 or more). Model 4, illustrated in Table 6, indicates that African American food pantry participants in Democratic counties are 19% more likely to experience high barriers than African American food pantry participants in Republican counties ($P<0.05$). Model 4 also reveals (in general) African American females are 32% more likely to experience high barriers than African American males ($P<0.001$).

Model 5, shown in Table 6, includes only those respondents who utilized SNAP in the past month. All races (including White, Hispanic/Latino, African American, Native Hawaii/Pacific Islander, Mixed, Asian, and American Indian/Alaskan Native) were independent dummy variables. Model 5 illustrates that African American food pantry participants who used SNAP in the last month are 38% more likely to experience high barriers than White SNAP participants ($P<0.001$). The remaining races, Hispanic/Latino, Native Hawaii/Pacific Islander, Mixed, Asian, and American Indian/Alaskan Native respondents, were not statistically different from the White respondents' effect on the dependent variable, barriers, with the current observations from this survey. Model 5 and Model 2 in Table 6 highlight the trend of African American food pantry participants experiencing a greater likelihood of experiencing high barriers, with Model 2 at 28% and Model 5 at 39% compared to White food pantry participants.

4. Discussion and Conclusions

Previous research on food pantries focused mainly on barriers that include lack of transportation, information, need, and access (Fong, Wright, and Wimer 2016); however, there is a lack of research on what information or documentation is required to participate in food pantry distribution. Documentation types that require multiple forms of authentication (Social Security card, driver's license, etc.) could be difficult for population groups, including undocumented non-citizens, homeless (Sanders et al. 2020), low-income (Perez 2015), single mothers (Pittsburg Foundation 2019), and members of the LGBTQ+ community (Tobia 2017), to obtain creating difficulty for those in the greatest need of food pantry assistance. Certain barriers, such as a Social Security card and driver's license, are more than just one barrier; they are inherently three barriers each because both require two additional forms of officially validated documents to obtain them. This affects demographic groups such as undocumented non-citizens, homeless, low-income, single mothers, and members of the LGBTQ+ community more than others, and further marginalizes these populations. Therefore, this study sets out to better understand the types of documentation-based/barriers food pantries require across the United States.

This study revealed that female food pantry participants were 11% ($p<0.05$) more likely to experience high barriers (3 or more barriers) relative to male food pantry participants when utilizing a food pantry (shown in Model 2 of Table 6). Also, female food pantry participants in this study on average experienced 2.5 barriers to food pantry participation, whereas male food pantry participants on average experienced 2.3 barriers to food pantry participation (shown in Table 2), a two-sample t-test of the average number of barriers of female versus male respondents supported that the average number of barriers for female respondents are statistically greater than that for male respondents ($p<0.05$). Even further, African American female food

pantry participants were 32% ($p<0.001$) more likely to experience high barriers relative to African American male food pantry participants when utilizing a food pantry (shown in Model 4 of Table 6).

In addition, this study found that minority food pantry participants (including Hispanic/Latino, African American, Native Hawaii/Pacific Islander, Mixed, Asian, and American Indian/Alaskan Native) were 12% ($p<0.01$) more likely to experience high barriers (3 or more barriers) relative to White food pantry participants when utilizing a food pantry (shown in Model 1 of Table 6). Moreover, African American food pantry participants were 28% ($p<0.001$) more likely to experience high barriers (3 or more barriers) relative to White food pantry participants when utilizing a food pantry (shown in Model 2 of Table 6). Similarly, African American food pantry participants on average experienced 2.7 barriers to food pantry participation, whereas White food pantry participants on average experienced 2.4 barriers to food pantry participation (Table 2), a two-sample t-test of the average number of barriers of White versus African American respondents supported that the average number of barriers for White respondents is statistically smaller than that for African American respondents ($p<0.01$). Also, 60% of African Americans in this study had to provide a place of employment and 56% had to provide a Social Security card at their previous food pantry visit, while 21% of White respondents had to provide a place of employment and 21% had to provide a Social Security card at their last visit (shown in Table 3), two-sample t-tests support that the percentage of African Americans that experienced a place of employment barrier and a social security card barrier is significantly greater than that of White respondents ($p<0.001$ in both tests).

Further, this study revealed that SNAP users on average experienced 2.5 barriers to food pantry participation whereas non-SNAP users on average experienced 2.2 barriers (Table 2),

one-sample t-test of the average number of barriers of respondents who utilize SNAP versus non-SNAP respondents found that the average number of barriers for SNAP respondents is not statistically smaller than the average number of barriers for non-SNAP respondents ($p>0.05$). Conversely, this study found that SNAP users were 11% more likely ($p<0.05$) to experience high barriers (3 or more barriers) to food pantry participation compared to non-SNAP users (shown in Model 2 of Table 6).

Previous literature supports that food insecurity is experienced at higher rates for women compared to men, minorities compared to White individuals, and SNAP households compared to non-SNAP households (Broussard 2019; Patterson, Russomanno, and Tree 2020; Grimaccia and Naccarato 2022; Russomanno, Patterson, and Jabson 2019; Myers and Painter 2017; Walker et al. 2021; Rice 2021; Franklin et al. 2012). The female, minority, and SNAP-using populations should be the target demographic for food pantry use, yet this study finds they are experiencing the highest number of barriers to participating in food assistance from a food pantry. As such, future research should be conducted to dive into the improvement of food pantry access for all people.

A limitation of this study, there were no straightforward questions for respondents regarding the type of food pantries they visited; future research should focus on barriers by respective food pantries (faith-based, community-based, education-based) to check between pantry types. Importantly, this study could not disentangle the effects of government vs. non-government-endorsed food pantries with regard to the number of barriers to participation. Future research should compare the differences between those food pantries which receive government funding and those that work independently. Another limitation of this study would be the presence of inherent bias. Food pantry users who participated in this study may already be aware

of the participation requirements of their local food pantries and know which pantries to avoid. Furthermore, this study did not ask if respondents were turned away from a food pantry due to not meeting documentation requirements, as such, this could be the most binding factor for food pantry participation. Lastly, as this study had a low number of observations for certain population groups (Transmale, Transfemale, Gender Variant/Non-Conforming, American Indian/Alaskan Native, and Native Hawaii/Pacific Islander individuals), future studies should have a more representative sample.

In February 2023 SNAP benefits were cut in the United States, ending the enhanced benefits Congress passed in March 2020 to provide additional support because of the COVID-19 pandemic. The 42 million low-income Americans currently enrolled in SNAP will soon face a "hunger cliff" because of the abrupt reduction in SNAP benefits; benefits will decrease on average for recipients by $90 a month, with some households losing $250 a month or more in benefits (Sainato 2023; Aubrey 2023). The USDA estimates that food prices will increase by 7.9% in 2023 (Sainato 2023), leaving families with even higher grocery bills and fewer SNAP benefits to help feed their families. SNAP recipients whose benefits have been reduced are already experiencing an increase in skipping meals, eating less, visiting food pantries, and buying less but cheaper and less nutritious meals (Sainato 2023; Aubrey 2023). Food pantries have already been facing "elevated levels of service" (pre-SNAP budget cuts) because of increased food and gas prices throughout the United States (Kaplan and Hoff 2023). With significant SNAP budget cuts in effect, food pantries and other non-profit food assistance groups will face considerable surges in demand as food pantry demand is directly influenced by financial shocks (Douglas et al. 2015). Given the reduction in SNAP benefits it is becoming more important for food-insecure individuals to have access to food pantries. Creating policy

recommendations for thousands of independent organizations which do not answer to one governing body is difficult. The results of this study suggest that instead of relying on documentation which requires multiple points of authentication (driver's license or Social Security card), food pantries could opt for any form of photo identification such as a school, work, or another form of photo I.D. that is less tedious for participants to obtain. This would help reduce some of the difficulties food-insecure individuals could face by removing the additional barriers of obtaining officially validated identification.

In the spirit of helping the most vulnerable it would be optimal for food pantries to consider an honor system, not requiring documentation for identification or proof of need, and just trust that clients are whom they say they are to help get food resources to food insecure households while maintaining the privacy and dignity of clients. An obvious first question that come to people's minds when talking about an honor system in food pantries is, "What about people who will abuse the system or lie to get food?" Rebecca de Souza, the author of the book, "Feeding the Other: Whiteness, Privilege, and Neoliberal Stigma in Food Pantries," attempts to address this concern and explains that "stigmatizing narratives shape the operations of food pantries and ultimately serve to uphold an unjust food system" (Shimada 2021). This book finds that society, over time has created this perception of distrust, suspicion, and fraud to those who utilize food pantries, especially of minorities, resulting in food pantries requiring various barriers, in the form of documentation requirements, for example. Similarly, the perception that the SNAP program is riddled with fraud is extremely inaccurate; less than one percent of SNAP benefits go to households that are ineligible, and there is a less than four percent payment error rate, including both overpayment and underpayment rates (Dean 2016; Central Texas Food Bank 2023). The Center on Budget and Policy Priorities website states, "the overwhelming majority of

SNAP errors that do occur result from mistakes by recipients, eligibility workers, data entry clerks, or computer programmers, not dishonesty or fraud by recipients" (Dean 2016). This again highlights the presence of stereotypes and stigma that are not based in truth, surrounding food assistance programs and the driving force of creating unnecessary barriers for food insecure individuals to utilize a food pantry. If the mindset of all food pantries, the charitable food system, and society shifted to battle food insecurity created by structural problems within our country instead of leading with suspicion and stereotypes for food insecure individuals, there could be more accomplished to address the real issue, people going hungry. That being said, because each food pantry follows a different mission statement (religious affiliation, targeting specific cultures, etc.) by definition there will be segmentation and unfortunately, documentation to prove that you are following the mantra of each mission statement.

This study can be of use to food pantries, food security researchers, others within the food assistance community, and those who may want to learn more about food pantries, and sets out to prompt future research in understanding why food insecure individuals may not be obtaining the food resources they need, further the understanding of what food pantry access looks like, and how food pantries could continue to expand their outreach to groups who may be in the greatest need of food assistance. In addition, this study hopes to encourage people to question the systems that have always been in place and, ultimately, spark conversations involving the role of food pantries in combatting food insecurity.

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Appendices

Appendix A. Survey Questions

Q1 **INVITATION TO PARTICIPATE** You are invited to participate in a research study about food insecurity (IRB _____). Please read through the following information and indicate your consent below to begin the survey.
INFORMATION ABOUT THE RESEARCH STUDY The survey should take approximately 20 minutes.

You must be 18 years of age or older to participate
Risks and Benefits: Your participation will assist in advancement of knowledge of U.S. food insecurity. There are no anticipated risks to participating in this study.
Voluntary Participation: Your participation in the research is completely voluntary.

Confidentiality: Your responses on the survey will be recorded anonymously. No identifying personal information will be collected in the survey. Only basic demographic information (age, gender, education etc.) will be collected.
Right to Withdraw: You are free to refuse to participate in the research and to stop filling out the survey at any time. If you have questions or concerns about this study, you may contact Alexis Skinner at ajskinne@uark.edu. For questions or concerns about your rights as a research participant, please contact Ro Windwalker, the University's Compliance Coordinator, at 1+ (479) 575-2208 or by e-mail at irb@uark.edu.

Thank you for your participation!
By clicking the button below and taking the survey, you acknowledge that you have read the above statement and have been able to ask questions and express concerns, which have been satisfactorily answered by the investigator. You understand the purpose of the study as well as the potential risks and benefits that are involved. You understand that your participation is voluntary and that no rights have been waived in giving your consent. You acknowledge that you are 18 years of age or older and that you may choose to terminate your participation in the study at any time for any reason.

- ○ I consent. Begin the study.
- ○ I do not consent. I do not wish to participate.

Q2 Do you commit to carefully reading and providing thoughtful and accurate answers to the questions in the survey?

- ○ Yes
- ○ No

Q3 Are you of legal age (18 or older)?

- ○ Yes
- ○ No

Q4 How many people (including yourself) live in your household?

▼ 1 ... 9+

Q5 Do you have children that live in your household?

- ○ Yes
- ○ No

Q6 Is your annual household income above or below $25,520?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $34,480?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $43,440 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $52,400 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $61,360 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $70,320 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $79,280 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $88,240 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Q6 Is your annual household income above or below $92,000 before taxes?

- ○ Definitely above
- ○ Probably above
- ○ Probably below
- ○ Definitely below

Please carefully and truthfully answer each of the questions below.
Q7 What is your age?

- ○ 18-21 years old
- ○ 25-34 years old
- ○ 45-54 years old
- ○ 55-64 years old
- ○ 65+ years old

Q8 To which gender identity do you most identify?

- ○ Female
- ○ Male
- ○ Transgender Female
- ○ Transgender Male
- ○ Gender Variant/Non-Conforming
- ○ Not Listed _____

Q9 Choose one or more race/ethnicity you consider yourself to be: **(mark all that apply).**

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Native Hawaii or Pacific Islander

☐ Hispanic or Latino

☐ Other _____

Q10 What is your marital status?

○ Single (Never Married)

○ Married, or in a Domestic Partnership

○ Widowed

○ Divorced

○ Separated

Q11 What is your highest completed education?

○ Less than High School

○ High School/GED

○ Some College

○ 2-Year College Degree

○ 4-Year College Degree

○ Master's Degree or PhD Degree

Q12 In the last month has anyone in your household received benefits from the SNAP program? This program used to be called food stamps. It puts money on a SNAP EBT card that you can use to buy food.

○ Yes

○ No

Q13 In the last month has anyone in your household received benefits from WIC? This program is called the Special Supplemental Nutrition Program for Women, Infants, and Children. Benefits are in the form of paper vouchers for eligible items or an EBT card.

- ○ Yes
- ○ No

Q14 Have you used a food pantry or acquired food through a community building (Church, Samaritan Center, Community Center, Food Bank, etc.) in the last month?

- ○ Yes
- ○ No

Q15 Did the Food Pantry, Church, Samaritan Center, Community Center, etc. that you visited offer fresh produce such as fruits and vegetables?

- ○ Yes
- ○ No

Q16 How many times are you allowed to visit this Food Pantry, Church, Samaritan Center, Community Center, etc.?

- ○ One visit per week
- ○ Two visits per week
- ○ Three or more visits per week
- ○ One visit per month
- ○ Two visits per month
- ○ Three visits per month

Q17 Did the Food Pantry, Church, Samaritan Center, Community Center, etc. that you visited offer hot meals or ready-to-eat meal items?

- ○ Yes
- ○ No

Q18 Information collected when you visited the Food Pantry, Church, Samaritan Center, Community Center, etc.? Select all that apply.

- [ ] Home Address
- [ ] Place of Employment
- [ ] Social Security Card
- [ ] Driver's License
- [ ] Household Size
- [ ] Blood Test
- [ ] Other? _____

Q19 What is your age?

- ○ 18-21 years old
- ○ 25-34 years old
- ○ 45-54 years old
- ○ 55-64 years old
- ○ 65+ years old

Q20 To which gender identity do you most identify?

- ○ Female
- ○ Male
- ○ Transgender Female
- ○ Transgender Male
- ○ Gender Variant/Non-Conforming
- ○ Not Listed _____

Q21 Choose one or more race/ethnicity you consider yourself to be: **(mark all that apply).**

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Native Hawaii or Pacific Islander
- ☐ Hispanic or Latino
- ☐ Other _____

Q22 What is your marital status?

- ○ Single (Never Married)
- ○ Married, or in a Domestic Partnership
- ○ Widowed
- ○ Divorced
- ○ Separated

Q23 What is your highest completed education?

- ○ Less than High School
- ○ High School/GED
- ○ Some College
- ○ 2-Year College Degree
- ○ 4-Year College Degree
- ○ Master's Degree or PhD Degree

Q24 What do you estimate your household annual total gross income to be (total income before taxes and deductions) this year?

- ○ Less than $20,000
- ○ $20,000-$39,999
- ○ $40,000-59,999
- ○ $60,000-$79,999
- ○ $80,000-$99,999
- ○ $100,000-$119,999
- ○ $120,000-$139,999
- ○ $140,000-$159,999
- ○ $160,000 or more

Q25 What is your zip code?

☐ _____

Appendix B. Additional Models

Table B1. Probit regression results from additional models.

Dependent Variable: Low Barriers (less than 3)	Model 6: Election Data	Model 7: Produce Access	Model 8: SNAP Subset & Election Data	Model 9: SNAP Subset with Race & Gender	Model 10: Nonwhite & SNAP	Model 11: Marital Status	Model 12: Hot Meals or Ready-to-Eat
Intercept	0.03	0.04	0.47**	0.36**	0.45***	0.21*	0.06
	(0.07)	(0.10)	(0.15)	(0.13)	(0.11)	(0.09)	(0.06)
Non-White			-0.55***		-0.30**		
			-0.12		(0.10)		
Hispanic or Latino				0.00			
				(0.24)			
Black				-1.04***			
				(0.17)			
Native Hawaii or Pacific Islander				4.66			
				(235.03)			
Mixed (2 or more races)				-0.16			
				(0.19)			
Asian				-0.52			
				(0.58)			
American Indian or Alaskan Native				-0.61			
				(0.54)			
Republican	0.03		-0.10				
	(0.10)		(0.12)				
Female			-0.34*	-0.26			
			(0.14)	(0.14)			
Transfemale			-5.39	-5.38			
			(235.03)	(235.03)			
Transmale			-4.90	-5.22			
			(165.93)	(166.19)			

Table B1. (Cont.)

Dependent Variable: Low Barriers (less than 3)	Model 6: Election Data	Model 7: Produce Access	Model 8: SNAP Subset & Election Data	Model 9: SNAP Subset with Race & Gender	Model 10: Nonwhite & SNAP	Model 11: Marital Status	Model 12: Hot Meals or Ready-to-Eat
Gender Variant or Non-Conforming			4.64	4.66			
			(166.19)	(166.19)			
SNAP User in Past 30 days					-0.38***		
					(0.11)		
Produce Access		0.00					
		(0.11)					
Married						-0.27*	
						(0.12)	
Widowed						-0.10	
						(0.24)	
Divorced						-0.33*	
						(0.16)	
Separated						-0.14	
						(0.23)	
Hot Meals or Ready-to-Eat							-0.04
							(0.10)
AIC	869.62	869.73	599.68	584	851.70	868.92	869.60

Standard error in parentheses
***p<0.001, **p<0.01, *p<0.05

Table B2. Marginal effects from additional probit models regression results.

	Model 6: Election Data	Model 7: Produce Access	Model 8: SNAP Subset & Election Data	Model 9: SNAP Subset with Race & Gender	Model 10: Nonwhite & SNAP	Model 11: Marital Status	Model 12: Hot Meals or Ready-to-Eat
Dependent Variable: Low Barriers (less than 3)							
Non-White	0.01		-0.21***		-0.12**		
	(0.04)		-0.04		(0.04)		
Hispanic or Latino				0.00			
				(0.09)			
Black				-0.37***			
				(0.05)			
Native Hawaii or Pacific Islander				1.67			
				(84.40)			
Mixed (2 or more races)				-0.06			
				(0.07)			
Asian				-0.19			
				(0.21)			
American Indian or Alaskan Native				-0.22			
				(0.19)			
Republican			-0.04				
			(0.05)				
Female			-0.13*	-0.09			
			(0.05)	(0.05)			
Transfemale			-2.03	-1.93			
			(88.30)	(84.40)			
Transmale			-1.84	-1.87			
			(62.34)	(59.68)			
Gender Variant or Non-Conforming			1.75	1.67			
			(62.44)	(59.68)			
SNAP User in Past 30 days					-0.15***		
					(0.04)		
Produce Access		0.00					
		(0.05)					
Married						-0.11*	
						(0.05)	
Widowed						-0.03	
						(0.09)	
Divorced						-0.13*	
						(0.06)	
Separated						-0.06	
						(0.09)	

Table B2. (Cont.)

	Model 6: Election Data	Model 7: Produce Access	Model 8: SNAP Subset & Election Data	Model 9: SNAP Subset with Race & Gender	Model 10: Nonwhite & SNAP	Model 11: Marital Status	Model 12: Hot Meals or Ready-to-Eat
Dependent Variable: Low Barriers (less than 3)							
Hot Meals or Ready-to-Eat							-0.01 (0.04)

Standard error in parentheses
***p<0.001, **p<0.01, *p<0.05

Appendix C. IRB Approval Document

UNIVERSITY OF ARKANSAS

To:	Alexis Skinner
From:	Douglas J AdamsJustin R Chimka, Chair IRB Expedited Review
Date:	03/17/2022
Action:	**Exemption Granted**
Action Date:	03/17/2022
Protocol #:	2201383047
Study Title:	Using Anchoring Vignettes to Assess the Understanding of Food Insecurity in Low-Income Households

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Di Fang, Investigator
Wei Yang, Investigator