Soc-291: Methods of Empirical Investigation

Professor Oberlin

Final Project Proposal

Food Security Barriers for Rural Food Pantry Clients

Mid-Iowa Community Action Center

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Introduction:

There has been a higher rate of “non-metropolitan” poverty versus “metropolitan” poverty every year from 1967 to 1997 in the U.S. (Lichter and Eggebeen 1992). Non-metropolitan refers to non-urban areas or rural spaces, while “metropolitan” areas are comparable to urban spaces. Even though the U.S. Department of Commerce calculated rural poverty to have higher rates than urban poverty, poverty in the U.S. is often thought of as an urban minority problem (Dehan Deal 2001). Consequently, not only is rural poverty over looked by service providers but the unequal framing of poverty is also reflected in the literature. There are numerous poverty alleviation services available in communities across the country all of which have probably undergone a needs assessment or other program evaluation. However, there has been a more limited amount of research done on the specific resource of food pantries in rural communities. This gap in research is reflected in the services provided to rural communities. The barriers individuals face while trying to access a food pantry’s resource in a rural area could be different or more or less severe given the environment and civic structures.

In order to draw out and learn more about the barriers food pantry clients face in rural regions, I will use the Mid-Iowa Community Action Center’s food pantry in Grinnell, IA as a case study location of food pantry clients. I am currently a work-study intern at MICA, allowing me access to the population and administrative support. The Mid-Iowa Community Action Center (MICA) serves five counties one of which is Poweshiek County. Poweshiek County is 585 square miles, has a population of 18,888, and includes the towns of Grinnell, Brooklyn, Montezuma, Malcom, Deep River, Searsboro, Guernsey, Hartwick, and Barnes City. The food pantry operated under the Temporary Assistance to Needy Families (TANF) program, which

aims to provide emergency food assistance to families in need. Need is defined by meeting income thresholds set by the U.S. Department of Health and Human Services. The thresholds are 200% of federal poverty guidelines and differentiate based on household size. Clients self-report their household income for the food pantry but it is verified through other forms such as, the basic intake form or the low-income heating assistance application. There are other food pantries in Poweshiek county including the Malcom, Montezuma, and Brooklyn food pantry. There are other additional food resources however, no other food pantries in Grinnell, IA. My research is framed by these two research questions: First more broadly, what are the challenges that rural food pantries face while trying to maintain food security? To focus this question on a feasible population, at the Grinnell Mid-Iowa Community Action Center's food pantry, what challenges do the clients face while trying to maintain food security in their household?

My method, used to seek out barriers that food pantry clients face, is surveying. Surveying will allow me to ask directly those who are most affected and knowledgeable of the barriers they face, the food pantry clients. The goal of the research is to gain evidence to claim that barriers are significant. However, it would also be beneficial to identify, which barriers need to be researched further in order to gather substantial evidence to support them. Additionally, gathering support that something is not acting as a barrier for rural food pantry clients at MICA, could help to distribute resources according to barriers. The findings will contribute knowledge to rural poverty experience of food pantries as well as help MICA assess barriers that could inform reform of their food pantry service.

I plan to analyze previous studies in order to construct possible variables that could be identified as barriers to food pantry clients. After identifying independent and dependent variables, I will present a research model that shows their relation. From this model, I will

hypothesize how the variables are related. I will then explain how, methodologically, I will test these hypotheses. In the process of outlining my method, I will address any reliability, validity, and ethical concerns that arise. After collecting my surveys, I will analyze the preliminary data collected, for relationships between independent and dependent variables. Through an explanation and interpretation of my findings, I hope to answer my research questions. That being said, I will also divulge any limitations of the method, data, or interpretation. Moving forward, I will identify what I have learned from my research and what follow-up steps could be taken and future projects could be developed.

Literature Review

There are many different resources for food, health, housing, etc. in communities across the nation. However, having resources available is not beneficial if first, there is not a need for them, and second, if those in need are not connected to the resources. MICA conducts their own community assessment, which they publish annually. This includes information of their clients and services from all five county offices; however, some of the data is separated by county. They found from their research that of their clients, "29.7% experienced difficulty obtaining food" (MICA's Community Assessment 2014; 24). Interestingly, less than 25% of clients identified "difficulty obtaining" food as a "very serious" issue (MICA's Community Assessment 2014; 24). This could indicate invisible barriers in obtaining food resources. For example, Morton et al. studied how food insecurity can be overcome in Iowan food deserts. They identified barriers as low-income and age. One of the solutions they supported with their research was for rural communities to invest in social/civic structures that fight food insecurity. Their findings did not support that personal connections, such as individual giving and receiving food and resources

which are expected to help decrease the odds of being food insecure. According to Morton et al, their findings suggest it would be more beneficial to invest in improving effectiveness of food resources, such as MICA's food pantry in Grinnell, rather than personal connections.

Studying specific groups of those who are affected by limited access to food is beneficial in uncovering barriers that are overlooked. For example, Wolfe et al. looked at how elders experience food insecurity. The goal of their research was to learn how to better measure food insecurity through the insights they gathered from elders. They found that while money is the leading cause of food insecurity, elders who do not face this barrier are still food insecure because they are not able to access food due to transportation, functional limitations, functional impairments, and health problems that do not allow them to eat or prepare the food. From their findings, they suggested adjustments be made to the USDA's food security survey module. Although, this study was conducted in large cities in upstate New York, elders' functional limitations and impairments are separate from the urban environment. Additionally, access to transportation could be even more limited in a rural versus urban environment. In Poweshiek County, MICA's community assessment calculated that around 20% of residents living below the poverty line are elder.

Daponte et al. studied food pantry use among low-income households Allegany County in Pennsylvania. Although, Allegany County is not rural and in fact the second most populous county in Pennsylvania, their study is unique in that it compared low-income non-pantry users to low-income pantry users. Intriguingly, they found that when variables for income and assets are accounted for, the only variable significantly related to the likelihood of using a food pantry is whether or not the household owns a car (Daponte et al. 1998; 50). Daponte el al. uses this finding to pose the solution to be neighborhood-based pantries and localized food-distribution

systems. Neighborhood-based food pantries and localized food-distribution systems can be even more crucial in rural communities that receive fewer specialized services than urban communities (More 2001). From this research, I am interested in transportation as a possible barrier. Although I am only surveying low-income individuals who are food pantry clients, it would be significant to find a relationship between transportation and food security because if clients struggle with establishing reliable transportation, then those who are not even able to use MICA's food pantry service likely face transportation as a barrier, as well.

Many of the studies on barriers of food pantries do not focus on rural food pantries specifically. For example, the barrier of transportation was examined in an urban area. My survey will allow for many potential barriers to be examined and assessed for impact of the clients' food security. The preliminary data and findings can inform future research not only for MICA but also for other rural food pantries.

Describe the research model

Independent variables

I decided to divide the independent variables by external barriers versus internal barriers after reading previous literature that used a barrier framing (Wood et al. 2007; Algert 2006). For external barriers I identified, transportation, knowledge of food preparation, and proper appliances as possibly affecting the clients' food security (Daponte et al. 1998, Wolfe et al. 2003, Broughton et al. 2006). For internal barriers, I identified food choice, availability of bread/milk programs, and duration of the food box (Furst et al. 1996). The survey questions that ask about external barriers are, 3, 5, 6, 12, and 13, while the questions that ask about internal barriers are,

1, 2, 10, 11, 13, 18, and 19. This combination of questions will allow me to identify which barriers MICA's food pantry could prevent by allocating resources; this in turn would decrease food insecurity.

After reading Schutt chapter four, we discussed in class the five considerations made to operationalize a variable includes defining the range of variation, categorization, attributes, levels of measurement, and whether or not it is multi-concept. The range would be defined by picking all answers, indicating the presence of a barrier on the questionnaire, to answering all the questions, indicating almost no present barriers. Categorization is determined by the separation of variables into two groups internal and external. Attributes of these variables include transportation, availability of food choice, etc. Examples of questions for the respective attributes are, "What is your main mode of transportation to MICA's food pantry? and "List up to three necessary foods you would like to see more available in the food pantry." The levels of measurements are often, one or the other due to the limitations of the survey, for example, yes or no. However, there are a few open-ended questions. Since there are two or more indicators to measure one concept the variable is multi-concept.

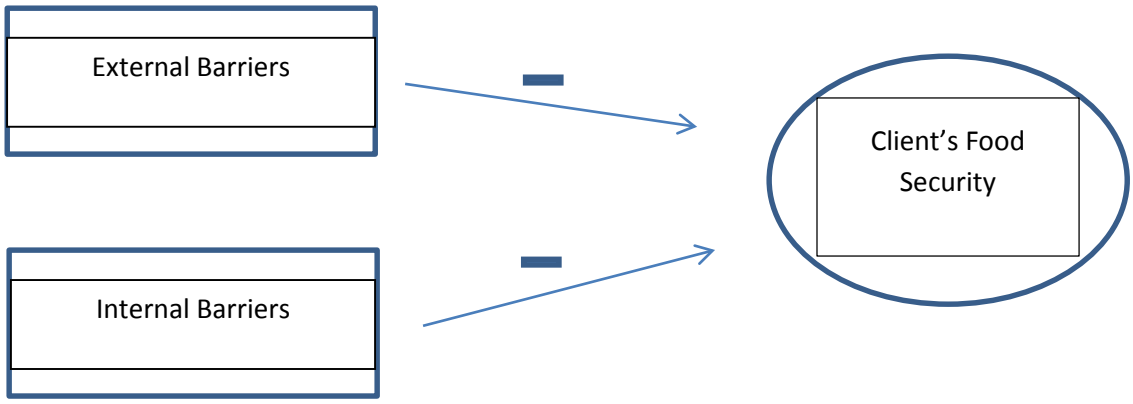
Dependent variable

The clients' food security is the dependent variable I chose because all of the questions about challenges and barriers of accessing the food pantry directly affect the client's food security. In this conceptualization, the idea of food security is for instance, more specific than hunger but general enough that it could be caused by an infinite number of factors. In this research project proposal, the clients' food security is the outcome of interest because the survey questions inform and shape the understanding of food pantry clients' food security. In other

words, the very responses from the questions identify food security or the lack thereof. The USDA's Household Food Security Survey Module (2012) provides insights to the formula of questions that are used to determine food security such as, "In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?" From here there is a progression of similarly worded questions that would slightly increase the level of food insecurity if affirmative responses were recorded.

As I mentioned earlier there are five considerations made to operationalize a variable this includes defining the range of variation, categorization, attributes, levels of measurement, and if it is multi-concept (Schutt). The range would be defined by having an affirmative response to the two food security questions adopted from the USDA's survey module. Categorization is determined by the food security factor being asked about such as access (i.e. transportation), suitability (i.e. food items least used), and effectiveness (i.e. duration of food box). Accessible, suitable, and effective thus become the attributes. Due to the limitations of the survey, the levels of measurements are often, one or the other, for example, yes or no. However, there are a few open-ended questions Since there are two or more indicators to measure one concept (i.e. food security) the variable is multi-concept.

Here is a visual representation of the variables' relationship:



The external and internal barrier variables are negatively correlated to the dependent variable of rural food pantry clients' food security. In other words, the more barriers than arise the more food security of clients decreases. This is a similar model to the USDA's Household Food Security Survey Module but it extends beyond money being the variable that is the singular positive correlation to food security. Since the food is being cycled through a food pantry, there are other factors that could impact the severity of food insecurity such as the accessibility, suitability, and effectiveness of the program.

Hypotheses

Due to large support from the literature, I hypothesize that the external barrier of transportation reliability will be significant for those who respond affirmative to the food insecurity level 2 question, "In a typical month, did you ever skip a meal because your household was short on food?" (Daponte et al. 1998; Wolfe et al. 2003). Additionally, I hypothesize that those who indicate they have a dietary restriction are more likely to also have an affirmative response to food insecurity level 2. This hypothesis is based heavily on the literature of food

choice and food choice pantries, which indicate that not having food choices adequate to maintain health, increases food insecurity (Wolfe et al. 2003; Duffy et al. 2009; Furst et al. 1996)

Method

Approach

A moderate methodological approach between secondary data and interview, is a survey. A survey allows me to ask a variety of targeted question but also focuses and narrows responses enough so there would not be an excess of information not directly relevant to my research question. One limitation is that given the population the survey would not be able to be completed online but instead on paper since it is likely that there are clients that do not have easy access to the internet. In the survey, I am able to ask questions first to determine if someone is food insecure, such as “In the last month, did you ever skip a meal because your household was short on food?” As well as being able to ask questions that would answer whether or not there are barriers to accessing the food pantry’s services such as, “Do you have reliable transportation to MICA’s food pantry? Always, Often, Sometimes, Rarely. These two aspects are important because it divides the sample into levels of food insecurity for a more in-depth analysis of the barriers faced by the more food insecure group versus the less food insecure group. The survey data type would provide less bias from the researcher and the greatest limitations that would arise would be the self-reporting aspect of the survey, which could be very relative depending on the individual. However, ultimately a survey would be the most feasible and suitable in that it would not only answer the research question but also provide an adequate sample size that would give enough weight to the findings. It offers the malleability to form to the research question that

the secondary data does not and it provides a structure that focuses on specificity while limiting excess information.

Sampling Strategy

For my sampling strategy, I applied a convenience strategy. Since there are already time periods that I am in the MICA office, I utilized these as well as additional hours for two weeks to gather my target sample size of 30. The amount of food box requests fluctuates significantly; therefore, I could not strategically choose my hours. I also had to do what was feasible for my schedule as a full-time college student. However, I reached my target sample of 30. The way the convenience strategy worked for food pantry clients at MICA, is whenever someone came in while I was working I greeted them and asked them what I could help them with, as I usually did. Then if they asked to get their monthly food box, I would retrieve their file, check to see if they were eligible since households are only permitted one food box per month, then I would ask them if their household size was still the same and whether or not they would like a milk voucher, this is also procedure. I wanted to make sure the client knew that they would be getting their food box and any additional services before asking if they would be willing and have the time to complete the survey. As they were filling out the survey, I would prepare and distribute their food box to them. To maintain sampling consistency and for the feasible reason that this was an additional project to my regular duties, I was the only one to administer the surveys.

Access and permissions

As I mentioned before I am a work-study intern at MICA, this inherently creates bias in my research. However, positively, it also allowed me to use my established relationships to gain

access to a population. I do not believe however, that if this research was recreated it would be limited if there was not a work-study intern, involved. That being said, MICA has an established connection with Grinnell College, in its commitment to interns, a fellowship, on-campus organization collaborations, etc. Therefore, anyone who is a member of the college would also be able to have the same amount of access. There was quite a bit of administrator approval that was required from the central office but it only took about two weeks to be granted approval. At other rural pantries, I would not know how access could be granted. There are many studies, which are organized and conducted through the Department of Health and Human Services. There is the possibility to utilize MICA's organizational structure, which include 5 offices in different counties, all of which have a food pantry.

IRB considerations

Ethically, I had to consider that the population I wanted to survey is vulnerable in that they are economically disadvantaged. For this reason, I wanted to be conscious of the methodology of the survey. As found in Appendix 1A, my survey has a consent script at the beginning, emphasizing that the respondent's answers will by anonymous and that the survey is voluntary. It does not ask for any identifying information.

In addition, I did not want to offer an incentive to take the survey as it could pressure someone who is more economically disadvantaged and food insecure to participate. Consequently, an incentive could skew respondent's to be more food and economically insecure since they are most likely to not be able to afford to turn down the incentive. In terms of the method of administrating the survey, I had to consider that the means of sampling include surveying those who come in and request a food box. I did not want the survey to be perceived as

a requirement to obtain a food box. Therefore, in addition to stating that the survey was voluntary, I would first go get their file, ask them if the household number was the same, and if they wanted a milk voucher or other additional items, which is procedure for food box distribution, before asking them if they would like to participate in the survey.

Variable Construction

For my dependent variables, I divided them into internal and external barriers. For example, the internal barriers, specifically, were food box duration, availability of bread and milk programs, and food choice. Food box duration refers to how long the food box items lasted the household. Since, the food box program is housed within the Temporary Assistance for Needy Families program (TANF), the food box is supposed to be an emergency assistance to families in need and only last for 3-4 days according to the program. However, the food insecurity of a household may be higher and need more than what the program is currently providing. My survey questions ask how long the food box lasts the household in order to compare it to how long it is supposed to last. If the food boxes do not last as long as they are supposed to this indicates an additional barrier to clients who are food insecure, receiving services that are not sufficient to meet their needs. Availability of bread and milk programs refers to the add-on programs within the food pantry such as bread vouchers, which a household can receive once a month unless there is bread on the public bread shelf. There are not restrictions on how often or who can use the bread shelf. The milk voucher program however only allows household to receive a voucher once a month and there are not alternative options to obtaining milk. Food choice is operationalized through my questions about dietary restrictions, most useful, and least useful food items, and whether or not they are available through the food pantry.

The external barriers were transportation, knowledge of food preparation, and cooking appliances. Transportation is straight forward in that what are they methods in which clients are accessing MICA's food pantry and how reliable is this method. Knowledge of food preparation is also straightforward in that although there are staple items that are always in the food box there are also miscellaneous items that change depending on what is donated. Therefore, there is the possibility that clients are receiving items they do not know how to prepare. Finally, many staple items and miscellaneous items require a certain level of cooking appliances and if clients do not have access to them, then the food items become obsolete.

Reliability

One way that the survey ensures reliability is by inter-item reliability, which according to Schutt is "an approach that calculates reliability based on the correlation among multiple items used to measure a single concept" (125). The survey is set up so the same concept is measured by more than one question this ensure reliability of responses.

Validity

One way that the survey ensures validity is by providing balanced response choices. This includes having both sides to a response for example, "always, most of the time, some of the time, rarely" these option cover both extremes as well as two moderate choices that keep a balance of choices.

Analysis

For each of these variables I performed a cross tabulation on them with my two food security questions. Level 1, which asks, "In a typical month, do you ever eat less than you would

have liked because you did not have enough food in your household?" and level 2, which asks, "In a typical month, did you ever skip a meal because your household was short on food?" These are both based on the USDA's survey module of food security. As you can see, level 1 indicates eating less, while level 2 increases in severity of food insecurity by indicating completely skipping a meal. None of the chi-square test were significant at an alpha level of .05. However, this is probably due to my small sample size of my preliminary surveying. There are some interesting relations to note. For example, in Appendix III. E. I crossed tabulated the transportation reliability question which asks how reliable one's transportation is to MICA's office, with responses on a scale of, always, often, sometimes rarely. There is a limitation to note, in that the survey was conducted on site at MICA meaning clients had to have used some form of transportation in the first place. Nevertheless, of those who said that they sometimes had reliable transportation to MICA, the lowest response choice, all of the respondents also responded affirmatively to the food insecurity level 2 question. This indicated that if a larger sample size were collected then there could be enough evidence to support rejecting the null hypothesis that transportation and food insecurity are independent of each other. As you can see below the Chi-Square value is small, which is reflected in the p-value, which is greater than .05.

Transportation Reliability and Food Insecurity Level 2 Cross Tabulation

			Transportation Reliability			
			Sometimes	Often	Always	Total
Food Insecurity 2	No	Count	0	2	9	11
		% within Transportation Reliability	0.0%	40.0%	50.0%	36.7%
	Yes	Count	7	3	9	19
		% within Transportation Reliability	100.0%	60.0%	50.0%	63.3%
Total		Count	7	5	18	30
		% within Transportation Reliability	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.455[a]	2	.065
Likelihood Ratio	7.746	2	.021
N of Valid Cases	30		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.83.

Another comparison to note, is the cross tabulation of the milk voucher program usage (an internal barrier variable) and the food insecurity level 1 question. As you can see below of those who use the milk voucher program the most frequent option of “once a month,” 70.6% of respondents also responded affirmatively to the food insecurity level 1 question indicating food insecurity. While only 29.4% responses indicated no to low food insecurity. Although the Pearson Chi-Square value is small and the p-value is greater than .05, indicating that there is not enough evidence to reject the null hypothesis, it could be partly due to the limitations of the small sample size.

Milk Voucher and Food Insecurity Level 1 Cross Tabulation

			Milk Voucher				
			Once a month	Every other month	Twice a year	Less than twice a year	Total
FoodInsecurity1	No	Count	5	0	1	2	8
		% within Milk Voucher	29.4%	0.0%	100.0%	50.0%	26.7%
	Yes	Count	12	8	0	2	22
		% within Milk Voucher	70.6%	100.0%	0.0%	50.0%	73.3%
Total		Count	17	8	1	4	30
		% within Milk Voucher	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.838[a]	3	.077
Likelihood Ratio	8.653	3	.034
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .27.

Conclusion

From the preliminary data, we have learned that transportation and the milk and bread programs did have some interesting findings as it relates to the MICA food pantry clients' food security. I was unable to analyze effectively all of the questions on food choices due to many of them being open-ended and as a result having even fewer responses that the entire sample size. Due to limitation of the sample size, more surveys would have to be collected before evidence supports the relationship. Additionally, surveys of other local food pantries could be collected to identify a trend across multiple rural food pantries. This case study has been able to differentiate which barriers are having a larger negative impact on client's food security. Future research should expand on transportation, milk, bread, and other food staple supplement programs and their impact of food security in rural areas. Additionally, resources could be formed in order to render these barriers obsolete. For example, having a delivery service for those in need of food but without transportation or redistributing food pantry funds to purchase more dairy and meet products as well as purchasing the facilities to house them. I would like to make adjustment to the survey and continue my research of barriers to the MICA's food pantry through my participation in the sociology practicum course. Furthermore, MICA's central office is applying pressure to its five county offices to transition their food pantries to food-choice pantries. This would allow clients to choose what food items they would like in their food box. I would like to

research the effects of this transition by surveying clients after the transition in order to identify not only if barriers became obsolete but also if any new barriers arose due to change in internal construction of the food-choice pantry system.

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Appendix I. Survey Instrument.

Survey of MICA Food Pantry Clients
Needs Assessment

This research is being conducted as part of Sociology 291 Methods of Empirical Investigation course at Grinnell College. The goal is for students in this course to become more familiar with how to collect, interpret, and represent data, such as survey responses. The purpose of this survey is to better understand the needs of the Food Pantry Clients. Please take a few moments to fill out the questionnaire below.

Your responses are anonymous. No identifying information will be collected that can connect you to survey responses.

Your participation in this study is completely voluntary; I really appreciate your participation.

If you have any questions about the survey, or the study more generally, please feel free to contact Roselle Tenorio (student) email: tenorior17@grinnell.edu or the SOC-291 professor: Kathleen Oberlin: email: oberlink@grinnell.edu phone: (641)-269-3827

Check box or fill in responses when appropriate:

1. Do you feel that the food boxes meet your needs?
   - ☐ Yes
   - ☐ No
2. On average, how long does the food that you receive from the food pantry last in your household?
   - ☐ 1 day
   - ☐ 2 days
   - ☐ 3 days
   - ☐ 4 days or more
3. What is the average dollar amount you are able to spend on food in a month? (Do not include food stamps, value of food box, or other food assistance programs in calculation.)
   - ☐ $
4. In a typical month, do you ever eat less than you would have liked because you did not have enough food in your household?
   - ☐ Yes
   - ☐ No

5. What is your main mode of transportation to MICA's food pantry?
    - Walk
    - Bike
    - Car
    - Carpool
    - Other please specify _____
6. Do you have reliable transportation to MICA's food pantry?
    - Always
    - Often
    - Sometimes
    - Rarely
7. In a typical month, did you ever skip a meal because your household was short on food?
    - Yes
    - No
8. Is there a particular month that you are more likely to use the food pantry? If so which?

9. List up to three foods you would like to see more available in the food pantry:
    1)
    2)
    3)
10. What are the least useful food box items you've received? (List up to 3):
    1)
    2)
    3)
11. Do you have the appliances (microwave, refrigerator, stove, hotplate) to adequately prepare the food from the food box?
    - Yes
    - No
12. Do you ever get food box items in your food box that you do not know how to prepare?
    - Yes
    - Most of the time
    - Some of the time
    - No
13. Are there items that you do not eat due to dietary, cultural, or religious reasons?
    - Yes
    - No
14. If yes, please explain:

15. Have you utilized non-food items available in our pantry within the last year?
    - Yes
    - No
16. If so, which?

17. List up to three non-food items (toiletries, baby care products, cleaning supplies, etc.) that you would benefit from being available through the food pantry:
    1)
    2)
    3)
18. How often do you utilize the bread program at MICA? (This includes the bread shelf or voucher).
    - More than once a month
    - Once a month
    - Every other month
    - Twice a year
    - Less than twice a year
19. How often do you utilize the milk vouchers?
    - Once a month
    - Every other month
    - Twice a year
    - Less than twice a year
20. Anything else you would like to share?

Thank you!

Appendix II. Cross Tabulations of independent variables and Food Security Level 1 Question

A. Internal Barriers Variable: Milk Voucher

Milk Voucher and Food Insecurity Level 1 Cross Tabulation

			Milk Voucher				
			Once a month	Every other month	Twice a year	Less than twice a year	Total
FoodInsecurity1	No	Count	5	0	1	2	8
		% within Milk Voucher	29.4%	0.0%	100.0%	50.0%	26.7%
	Yes	Count	12	8	0	2	22
		% within Milk Voucher	70.6%	100.0%	0.0%	50.0%	73.3%
Total		Count	17	8	1	4	30
		% within Milk Voucher	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.838[a]	3	.077
Likelihood Ratio	8.653	3	.034
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .27.

B. Internal Barriers Variable: Bread Program

Bread Program and Food Insecurity Level 1 Cross Tabulation

			Bread Program					
			More than once a month	Once a month	Every other month	Twice a year	Less than twice a year	Total
Food Insecurity 1	No	Count	3	2	0	0	3	8
		% within Bread Program	50.0%	25.0%	0.0%	0.0%	50.0%	27.6%
	Yes	Count	3	6	5	4	3	21
		% within Bread Program	50.0%	75.0%	100.0%	100.0%	50.0%	72.4%
Total		Count	6	8	5	4	6	29
		% within Bread Program	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.473[a]	4	.166
Likelihood Ratio	8.529	4	.074
N of Valid Cases	29		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is 1.10.

C. Internal Barriers Variable: Food Box Duration

Food Box Duration and Food Insecurity Level 1 Cross Tabulation

			Food Box Duration					
			1 day	2 days	2-3 days	3 days	4 days or more	Total
Food Insecurity 1	No	Count	0	0	0	6	2	8
		% within Food Box Duration	0.0%	0.0%	0.0%	42.9%	16.7%	26.7%
	Yes	Count	1	2	1	8	10	22
		% within Food Box Duration	100.0%	100.0%	100.0%	57.1%	83.3%	73.3%
Total		Count	1	2	1	14	12	30
		% within Food Box Duration	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.945[a]	4	.414
Likelihood Ratio	4.860	4	.302
N of Valid Cases	30		

a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is .27.

D. Internal Barriers Variable: Food Choice Restriction

Restrictions and Food Insecurity Level 1 Cross Tabulation

			Restrictions		
			No	Yes	Total
Food Insecurity 1	No	Count	7	1	8
		% within Restrictions	29.2%	16.7%	26.7%
	Yes	Count	17	5	22
		% within Restrictions	70.8%	83.3%	73.3%
Total		Count	24	6	30
		% within Restrictions	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.384[a]	1	.536
Likelihood Ratio	.414	1	.520
N of Valid Cases	30		

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.60.

E. External Barriers Variable: Transportation

Transportation Reliability and Food Insecurity Level 1 Cross Tabulation

			Transportation Reliability			
			Sometimes	Often	Always	Total
Food Insecurity 1	No	Count	2	1	5	8
		% within Transportation Reliability	28.6%	20.0%	27.8%	26.7%
	Yes	Count	5	4	13	22
		% within Transportation Reliability	71.4%	80.0%	72.2%	73.3%
Total		Count	7	5	18	30
		% within Transportation Reliability	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.138[a]	2	.933
Likelihood Ratio	.145	2	.930
N of Valid Cases	30		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.33.

F. External Barriers Variable: Appliances

Appliances and Food Security Level 1 Cross Tabulation

			Appliances		
			No	Yes	Total
Food Insecurity 1	No	Count	1	7	8
		% within Appliances	100.0%	25.0%	27.6%
	Yes	Count	0	21	21
		% within Appliances	0.0%	75.0%	72.4%
Total		Count	1	28	29
		% within Appliances	100.0%	100.0%	100.0%

Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.719[a]	1	.099
Likelihood Ratio	2.671	1	.102
N of Valid Cases	29		

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .28.

G. External Barriers Variable: Food Preparation Knowledge

Food Preparation Knowledge and Food Insecurity Level 1 Cross Tabulation

			Food Preparation Knowledge				
			No	Some of the time	Most of the time	Yes	Total
Food Insecurity 1	No	Count	6	1	0	1	8
		% within Food Prep	31.6%	14.3%	0.0%	100.0%	26.7%
	Yes	Count	13	6	3	0	22
		% within Food Prep	68.4%	85.7%	100.0%	0.0%	73.3%
Total		Count	19	7	3	1	30
		% within Food Prep	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.624[a]	3	.201
Likelihood Ratio	5.354	3	.148
N of Valid Cases	30		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .27.

Appendix III. Cross Tabulations of independent variables and Food Security Level 2 Question

A. Internal Barriers Variable: Milk Voucher

Milk Voucher and Food Insecurity Level 2 Cross Tabulation

			Milk Voucher				
			Once a month	Every other month	Twice a year	Less than twice a year	Total
Food Insecurity 2	No	Count	7	1	1	2	11
		% within Milk Voucher	41.2%	12.5%	100%	50.0%	36.7%
	Yes	Count	10	7	0	2	19
		% within Milk Voucher	58.8%	87.5%	0.0%	50.0%	63.3%
Total		Count	17	8	1	4	30
		% within Milk Voucher	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.194[a]	3	.241
Likelihood Ratio	4.821	3	.185
N of Valid Cases	30		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .37.

B. Internal Barriers Variable: Bread Program

Bread Program and Food Insecurity Level 2 Cross Tabulation

			Bread Program					
			More than once a month	Once a month	Every other month	Twice a year	Less than twice a year	Total
Food Insecurity 2	No	Count	1	4	2	1	3	11
		% within Bread Program	16.7%	50.0%	40.0%	25.0%	50.0%	37.9%
	Yes	Count	5	4	3	3	3	18
		% within Bread Program	83.3%	50.0%	60.0%	75.0%	50.0%	62.1%
Total		Count	6	8	5	4	6	29
		% within Bread Program	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

C. Internal Barriers Variable: Food Box Duration

Food Box Duration and Food Insecurity Level 2 Cross Tabulation

			Food Box Duration					
			1 day	2 days	2-3 days	3 days	4 days or more	Total
Food Insecurity 2	No	Count	0	0	1	5	5	11
		% within Food Box Duration	0.0%	0.0%	100.0%	35.7%	41.7%	36.7%
	Yes	Count	1	2	0	9	7	19
		% within Food Box Duration	100.0%	100.0%	0.0%	64.3%	58.3%	63.3%
Total		Count	1	2	1	14	12	30
		% within Food Box Duration	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.599[a]	4	.463
Likelihood Ratio	4.880	4	.300
N of Valid Cases	30		

a. 7 cells (70.0%) have expected count less than 5. The minimum expected count is .37.

D. Internal Barriers Variable: Food Choice Restriction

Restrictions and Food Insecurity Level 2 Cross Tabulation

			Restrictions		
			No	Yes	Total
Food Insecurity 2	No	Count	10	1	11
		% within Restrictions	41.7%	16.7%	36.7%
	Yes	Count	14	5	19
		% within Restrictions	58.3%	83.3%	63.3%
Total		Count	24	6	30
		% within Restrictions	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.292[a]	1	.256
Likelihood Ratio	1.421	1	.233
N of Valid Cases	30		

a. 2 cells (50.0%) have expected count less than 5.
The minimum expected count is 2.20.

E. External Barriers Variable: Transportation

Transportation Reliability and Food Insecurity Level 2 Cross Tabulation

			Transportation Reliability			
			Sometimes	Often	Always	Total
Food Insecurity 2	No	Count	0	2	9	11
		% within Transportation Reliability	0.0%	40.0%	50.0%	36.7%
	Yes	Count	7	3	9	19
		% within Transportation Reliability	100.0%	60.0%	50.0%	63.3%
Total		Count	7	5	18	30
		% within Transportation Reliability	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.455[a]	2	.065
Likelihood Ratio	7.746	2	.021
N of Valid Cases	30		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.83.

F. External Barriers Variable: Appliances

Appliances and Food Insecurity Level 2 Cross Tabulation

			Appliances		
			No	Yes	Total
Food Insecurity 2	No	Count	0	11	11
		% within Appliances	0.0%	39.3%	37.9%
	Yes	Count	1	17	18
		% within Appliances	100.0%	60.7%	62.1%
Total		Count	1	28	29
		% within Appliances	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.633[a]	1	.426
Likelihood Ratio	.976	1	.323
N of Valid Cases	29		

a. 2 cells (50.0%) have expected count less than 5.

The minimum expected count is .38.

G. External Barriers Variable: Food Preparation Knowledge

Food Preparation Knowledge and Food Insecurity Level 2 Cross Tabulation

			Food Preparation Knowledge				
			No	Some of the time	Most of the time	Yes	Total
Food Insecurity 2	No	Count	7	3	0	1	11
		% within Food Prep	36.8%	42.9%	0.0%	100.0%	36.7%
	Yes	Count	12	4	3	0	19
		% within Food Prep	63.2%	57.1%	100.0%	0.0%	63.3%
Total		Count	19	7	3	1	30
		% within Food Prep	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.580[a]	3	.311
Likelihood Ratio	4.861	3	.182
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .37.