How Cost Effective Are Food Pantry Programs for the Poor Likely to Be?

Wodon, Divya and Wodon, Naina and Wodon, Quentin

Nonprofit research Project

September 2013

How Cost Effective Are Food Pantry Programs for the Poor Likely to Be?

Divya Wodon, Naina Wodon, and Quentin Wodon

Nonprofit Research Project

September 2013

Abstract

This paper proposes a simple methodology for measuring and analyzing the cost effectiveness of food pantries and other food distribution programs that transfer in-kind benefits to the poor. The methodology suggests that even if the administrative cost, management, and nonfood costs of running food pantry programs is not negligible, the benefits generated by these programs for low income families may still be important for two reasons. First, the prices paid by food pantry programs when purchasing food from local food banks are lower than the prices charged by supermarkets for similar products. Second, most beneficiaries of food pantry programs are likely to belong to low income families and are also likely to use most of the food received. At the same time, the benefits from food pantry programs remain somewhat limited. Therefore, while the value of the food distributed by these programs is important for beneficiaries, additional initiatives to help households better allocate their own expenditures on food might generate even more value, thereby increasing the cost effectiveness of such programs.

1. Introduction

Food banks and pantries are widespread in the U.S. and the demand for their services among the low income population has increased in recent years. Jensen et al. (2011) suggest that about five percent of the U.S. population used food pantries in 2009. Nord et al. (2010) find that the number of food pantry users has grown by 20 percent with the recent great recession. The Food Research and Action Center (2013) reports that in 2012 18.2 percent of the U.S. population declared not having enough money at some point in the previous year to buy the food they needed. Every year, the U.S. Department of Agriculture's Emergency Food Assistance Program (TEFAP) distributes hundreds of millions of pounds of food mostly through local pantries, soup kitchens, and similar organizations. The cost of federal food distribution programs stood at US$ 757 million in 2012, of which US$ 444 million were allocated to the TEFAP[1].

The fact that the need for emergency food assistance remains great among the low-income population is hardly news. The need for food assistance was there well before the great recession, especially among households with few other sources of income (see for example Garasky et al., 2004, and Bhattarai et al., 2005). Even individuals who are employed have been shown to rely on emergency food programs (Berner et al., 2008). Furthermore, food pantries are not the only type of nonprofit programs that helps fight hunger. Other types of programs aiming to reduce hunger include, among others, collective kitchens (Engler-Stringer and Berenbaum, 2007), but all these programs tend to be very small as compared to government programs. Indeed, Guo (2009) shows that food banks and other nonprofits play only a limited role in addressing food hardship among low income families, with a much larger role being played by government assistance. This was also observed by Mosley and Tiehen (2004) who find that more people use food stamps than food pantries in Kansas City (a third of those using food stamps also participated in pantry programs). But at the same time when the availability of food stamps is reduced, more people seek help from food banks, as observed in North Carolina by Berner and O'Brien (2004). And the Food Research and Access Center reports that a third of all Americans eligible for food stamp benefits do not receive these benefits (quoted by Jensen et al., 2011).

Food pantries thus play an important role. Unfortunately, little seems to be known about their cost effectiveness. As noted by Tarasuk and Eakin (2005), while food pantries may appear to be "win-win" programs, they may not necessarily be as beneficial as some people think. The "win-win" perception stems from the fact that corporations do enjoy benefits from funding the programs or making food available for them through the visibility that this provides for their corporate social responsibility efforts. The employees and volunteers of food pantries benefit from the opportunity to serve the poor, whether this is on a paid or volunteer basis. And most of all, low income families do need the food. Still, the fact that food pantries have broad support does not imply that they are cost effective. They may well not be if the cost of delivering the food to beneficiary families is high, or if the targeting to the poor of the programs is weak. While there has been some research on the organizational effectiveness of food banks (Eisinger 2002; Evans and Clarke 2010), little seems to be known about their cost effectiveness.

How much value is likely to be generated for the poor for every dollar invested in running food pantries? The objective of this paper is to answer this question by providing a simple methodology for measuring the likely cost effectiveness of food distribution programs. In what follows, section 2 describes the methodology used to answer the question. An illustration of the methodology is provided in Section 3. A conclusion follows.

[1] On TEFAP, see the USDA Food and Nutrition Service website (http://www.fns.usda.gov/fdd/programs/tefap/).

2. Framework

Food distribution programs may not be cost effective if only a small part of their budget is used to buy the food that is distributed, while the rest is used to pay for other costs, such as the salaries of the employees of food pantries, transportation costs, insurance costs, or other costs. However, because food pantries often obtain their food at low cost from local food banks and do not need to make profits and cover various costs like typical supermarkets, the value at market prices of the food being distributed may be high in comparison to the cost of purchasing the food from local food banks. In addition, local food banks and nonprofits may receive some food items for free from individual and corporate donors or from the United States Department of Agriculture's TEFAP mentioned earlier[2], and this is the case for the programs discussed in this paper. Given these various factors, it is not clear *à priori* whether food pantries are cost effective or not. The question asked is: how much value does every dollar invested in food pantries generate in net benefits for participating low income families? To answer this question, the cost effectiveness of the program, *CE*, is defined as the value of the food distributed to the poor, denoted as *VFP*, divided by the total cost or budget for the program, denoted as *B*. To analyze the factors affecting the value of *CE*, the following decomposition is used:

$$CE = \frac{VFP}{B} = \frac{F}{B} \times \frac{VF}{F} \times P \times S_u = S_{FC} \times M \times P \times S_u$$

In the decomposition the first term is S_{FC}, which stands for the share of food costs *F* in the program's overall budget *B*. The value of S_{FC} is expected to be much smaller than one simply because the program has to be managed and the food has to be transported to the sites, so that other costs apart from the cost of purchasing the food come into play. The next term is *M* which stands for the multiplier effect. This effect comes from the fact that every one dollar spent on food by the program is actually worth more for beneficiaries, with the actual value of the food for beneficiaries denoted by *VF*. The value of the food distributed *VF* is estimated at market prices by collecting data on prices in supermarkets. Because nonprofits buy the food from the local food bank at lower prices than supermarket prices, the ratio *VF/F* is larger than one. In addition, as already mentioned, selected food items are donated or received for free, including through USDA donations to the local food bank where nonprofits get the food. Thus *M* may well be much larger than one. The next term is *P* which stands for poverty or its proxy. This is the share of beneficiaries of the program that can be considered as low income. In virtually all programs that aim to target the poor, there is some leakage to the non-poor, so *P* is smaller than one, but how much smaller depends on the targeting performance of the program. The last term is S_u which stands for the share of the food received by beneficiaries that is actually used by beneficiaries, acknowledging that some of the food received may well be thrown away.

This decomposition helps in understanding the factors that drive cost effectiveness. From the point of view of a donor of funding patron, the implementing nonprofit, and the beneficiaries, a higher value of *VFP/B* is beneficial because it means that the grant achieves a higher positive impact in terms of transferring benefits to low income families. If the multiplier *M* is large enough, this will compensate for the fact that all the other parameters in the decomposition are

[2] Given lack of detailed data on the cost of the food received for food pantries from TEFAP through the local food bank, the cost for USDA of that food is not factored in our estimates of cost effectiveness. Taking this cost into account would reduce cost effectiveness, but probably only marginally so because most of the food distributed through the programs considered in this paper is actually purchased by the nonprofits from the local food bank.

smaller than one. Overall, if *VFP/B* is larger (smaller) than one, then the program generates more (less) value for low income families than its overall cost.

3. Illustration

In most areas in the United States, or at least in most urban areas, a large number of food pantry programs co-exist. The typical setting is that of many small independent organizations, some of which are associated with churches, running food pantries in low income areas. For example, in the greater Washington DC area, the Capital Area Food Bank (CAFB) estimates that it provides food to 478,000 people through 700 partner agencies in the District of Columbia as well as neighboring areas from Maryland and Virginia. The CAFB distributes 33 million pounds of food annually, half of which is fresh produce. Some of its partner agencies target the homeless, while others target low income individuals and families. Some agencies also focus on children in schools that have large numbers of students who benefit from free or reduced priced lunches under federal or state programs, with the hope that food distributions will help students avoid hunger and thereby better succeed in school (for a review of the potential consequences of hunger for the ability of children to study, see for example Murphy et al., 2008). These various food pantry programs purchase food from the CAFB and distribute the food for free to beneficiaries, whether this distribution is taking place on the street, at home, at food distribution centers, or in schools. The programs/agencies typically provide various foods for free at least once a month, including dairy products, meats, non-perishable foods, fresh vegetables, and fruits.

In a setting such as this, various food pantries are likely to have potentially fairly different cost structures. Some programs may be run from a local church almost exclusively by volunteers, so that the share of their budget allocated to food purchases may be very high, which is a good thing. Other more institutionalized programs may have a broader reach, but they may also have higher nonfood costs, including in the form of wages for those running the programs. Similarly, some programs may be able to target the poor very well, as would be the case when the programs are run in very poor areas or when food is provided during the day with beneficiaries having to wait in line to receive the food (this is unfortunate, especially during times of inclement weather, but it often does increase targeting performance). Other programs may reach low income populations, but not necessarily only the very poor. This might be the case when the programs are run in schools or other settings where at least some beneficiaries are likely to be non-poor. In such cases, one way to try to target the programs well is to choose schools with an especially high share of students benefitting from free or reduced price lunches.

At the same time, while there may be large differences in the share of food costs between programs, as well as in the share of beneficiaries that are poor or low income, there are likely to be fewer differences in the other two parameters of the decomposition presented in the previous section, namely the multiplier effect and the share of the food actually used by households. The share of the food actually used by households is likely to be very high for many programs, because the quality of the food distributed is often good, and because beneficiaries simply need the food. Estimates for a program run by Martha's Table in Washington, DC, suggest that about 95 percent of the food distributed in that program was actually used by households themselves, or given to close friends and relatives or traded (Wodon et al., 2013). While this may be a somewhat high estimate, it is likely that only a small part of the food received by beneficiaries is wasted, especially when beneficiaries can themselves choose the type of food that they receive.

What about the multiplier effect? To the extent that food pantries try to provide a balanced diet to their beneficiaries and that most of the pantries purchase their food from the

same local food bank, differences in the multiplier effects between pantries may also be limited. As an illustration of the type of multiplier effect that would seem reasonable, consider table 1, which compares the prices of selected items that could be purchased at the CAFB with the prices charged for similar items by supermarkets in Washington, DC[3]. For many of the 41 food items listed in the table, the cost of the food purchased at the CAFB was less than twice its value at supermarket prices (meat is also purchased from the CAFB by food pantries, but the comparison with supermarket prices is less robust as there are large differences in quality in meat products).

Not taking into account the first few items in table 1 which were available for free at the time at the CAFB, and excluding the two most extreme price multipliers at both the top and bottom of the table as potentially reflecting differences in merchandizes as opposed to differences in prices (thus not considering the price multipliers for trail mix, peanut butter, corn muffin mix, and pork breakfast links), the average price multipliers across the remaining food items were 2.90, 2.91, and 2.74 for the three supermarkets, and the overall average for the three supermarkets was 2.85. Even if there is no perfect match between the items sold at the CAFB and the items available in the supermarkets, and even if the list of items in table 1 represents only a subset of what could be purchased at the CAFB at the time, table 1 gives a rough idea of the type of multiplier values that can be observed. Because some of the items typically distributed in larger quantities by food pantries such as fruits and vegetables, as well as cereals, beans, turkey, rice, cheese, and pasta, tend not to have the highest multipliers, it would seem reasonable that the multiplier (weighted by the value of the quantities purchased by each food pantry from the CAFB) would be lower than the straight average of the price multipliers in table 1. On the other hand, foods received for free from the CAFB increase the overall value of the multiplier. For the sake of the illustration that follows, it will therefore be assumed that an approximate average value of 3.0 for the overall multiplier is not unreasonable for a well-run food pantry program.

If one assumes a value of 3.0 for the multiplier and a value of 0.95 for the share of the food received by beneficiaries that is actually used, one can compute cost effectiveness for any pair of values for the share of food costs in the budget of a food pantry (on the horizontal axis in Figure 1) and its targeting performance in reaching the poor or low income beneficiaries (on the vertical axis in Figure 1). The results are displayed in Figure 1 through iso-curves representing specific values of cost effectiveness obtained for various pairs of values for both S_{FC} and P. The Figure suggests that if a food pantry program has a very high share of food costs and if it targets the poor very well, it may achieve a cost effectiveness ratio of about two, so that every dollar invested in the program generates a transfer of two dollars in kind for low income beneficiaries. But if targeting is weak, or if the share of nonfood costs is high, cost effectiveness falls rapidly.

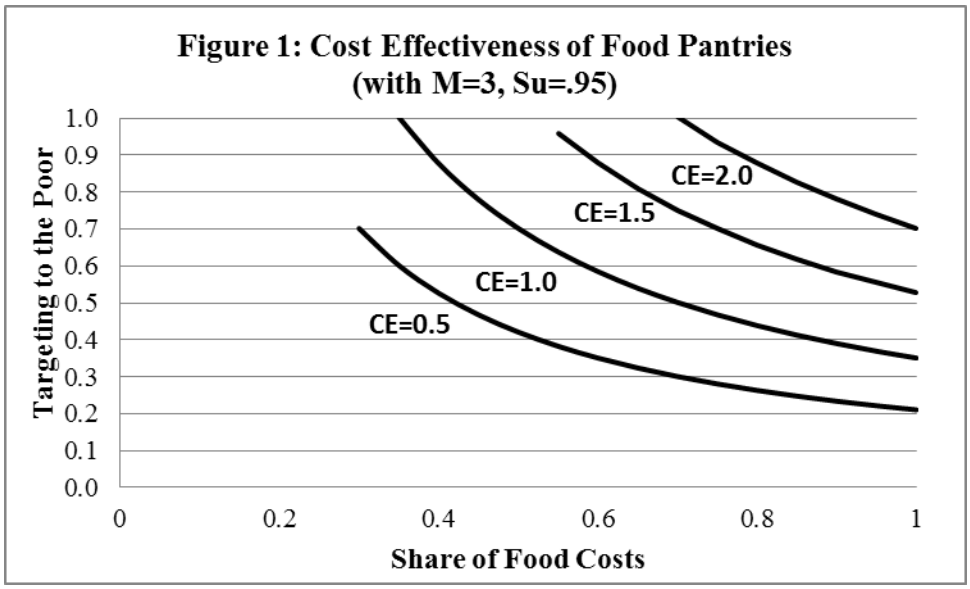
How could food pantries increase their cost effectiveness? For programs with low cost effectiveness, it may be feasible to increase cost effectiveness by raising the food cost share in the budget or by better targeting poor or low income beneficiaries. Increasing the multiplier through the selection of specific food items that have a larger price multiplier may also help. At the same time, if the food products that are distributed are to provide variety and good nutrition (including with fresh produce), there are also limits to the gains that may be achieved.

[3] The first two supermarkets were Safeways and the third was a Giant, with all three located within Washington, DC and one located in Anacostia, which is the poorest area of the city. These supermarkets were chosen because these Safeway and Giant have the largest market share of the grocery market in the Washington metro area. In the supermarkets the lowest cost brand were used as the reference and these are often the supermarkets' own brands).

Table 1: Prices of Selected Items at the Capital Area Food Bank, 2012

Item	Size	CAFB Price	1st Safeway Price	2nd Safeway Price	Giant price	Average store price	Price Multiplier
Pasta Sauce	14 oz.	0.00	1.49	1.49	1.59	1.52	-
Canned Soup	10 oz.	0.00	1.04	1.04	1.32	1.13	-
Macaroni	16 oz.	0.00	1.42	1.42	1.00	1.28	-
Peas	15 oz.	0.00	1.29	1.29	1.59	1.39	-
Pork Patties	15 oz.	0.00	4.99	4.99	4.99	4.99	-
Trail Mix	10 oz.	0.23	5.12	5.12	4.13	4.79	20.83
Peanut Butter	18 oz.	0.26	3.39	3.39	2.79	3.19	12.27
Eggs	1 lb	0.32	2.93	3.33	3.06	3.11	9.71
Sliced Turkey	14 oz.	0.55	4.37	4.37	3.93	4.22	7.68
Raisins	1.20 oz.	0.11	0.51	0.51	0.60	0.54	4.91
Kidney Beans	15.5 oz.	0.36	1.49	1.49	2.29	1.76	4.88
Breakfast Bars	.84 oz. 12/ box	0.48	2.18	2.18	2.21	2.19	4.56
Crackers	11.3 oz.	0.45	2.11	2.11	1.86	2.03	4.50
Yogurt	1 Pint	0.25	1.08	1.08	1.00	1.05	4.21
Cereal	14 oz.	0.70	3.19	3.19	2.13	2.84	4.05
Corned Beef Hash	25 oz.	1.15	4.65	4.65	3.58	4.29	3.73
Beans	16 oz.	0.44	1.39	1.43	1.75	1.52	3.46
Cookie Mix	17.5 oz.	0.78	2.59	2.59	2.29	2.49	3.19
Jelly	32 oz.	0.89	2.69	2.69	1.85	2.41	2.71
Ground Turkey	1 lb	1.63	4.22	4.22	3.84	4.09	2.51
Cheddar Wedges	6.7oz. 6/ pack	1.00	2.50	2.50	2.09	2.36	2.36
Stuffing	6 oz.	0.89	1.75	1.75	2.75	2.08	2.34
Apple Sauce	24 oz.	0.91	2.29	2.39	1.35	2.01	2.21
Canola Oil	48 oz.	1.86	3.79	3.79	3.99	3.86	2.07
Biscuit Mix	16 oz.	1.10	2.37	2.37	2.09	2.28	2.07
Oatmeal	1.58 oz. 8/ box	2.00	4.27	4.27	2.80	3.78	1.89
Rice	1 lb	0.72	1.40	1.40	1.10	1.30	1.81
Corn Flakes	14 oz.	1.77	4.31	2.33	2.33	2.99	1.69
Pork and Beans	16 oz.	0.75	0.97	1.04	1.27	1.09	1.46
Cheese	4 oz.	1.04	1.50	1.50	1.50	1.50	1.44
Tuna	5 oz.	1.06	1.69	1.45	1.33	1.49	1.41
Sweet Bran	14 oz.	1.66	2.44	2.44	2.09	2.32	1.40
Pasta	16 oz.	0.86	1.29	1.29	0.85	1.14	1.33
Honey	12 oz.	2.62	3.39	3.39	3.29	3.36	1.28
Grits	1 lb	2.77	3.05	3.05	2.65	2.92	1.05
Cheddar Bricks	4 oz.	1.67	1.50	1.50	1.50	1.50	0.90
Provolone	4 oz.	1.67	1.50	1.50	1.50	1.50	0.90
Fruit	1 lb	1.03	0.69	0.69	0.69	0.69	0.67
Corn Muffin Mix	7 oz.	1.16	0.65	0.65	0.65	0.65	0.56
Pork Breakfast links	9.6 oz.	4.41	1.79	1.79	1.38	1.65	0.37

Source: Compiled by the authors.



Source: Compiled by the authors.

What may also be promising to increase cost effectiveness further could be the ability of food pantries to add new components to their food distribution programs, and especially food and nutrition coaching for participating individuals and families. In order to give an idea of the benefits that might be generated from such initiatives, consider the fact that according to data from the Bureau of Labor Statistics, the average food expenditure per household per year in the District of Columbia was $8,342 in 2010-11, of which $4,482 was consumed at home. If coaching and education programs could improve the average benefits for low income households of their own home food dollars by five percent, this would generate the equivalent of an average value of $224 (=0.05 × $4,482) per participating family, not to speak of potential long term savings in health care costs from better nutrition. This is far from negligible, given that many food pantries provide only limited food to their beneficiary, often only once a month[4].

While this computation is hypothetical, it suggests that efforts to improve the value of food pantry programs through nutrition education might provide substantial additional benefits for participating individuals and families, thereby potentially increasing the resulting estimates of cost effectiveness substantially. Again, this is simply an illustration, and the impact of nutrition education would itself need to be evaluated to make sure that additional interventions coupled with food distribution programs are effective. But this direction does look promising, and it is therefore not surprising that efforts towards providing various forms of nutrition education have been undertaken by both the CAFB and its partner agencies, building on the existing pantries.

One last point needs however to be made before concluding. While this paper hopefully provides guidance and a simple methodology for food pantry programs to estimate their own cost effectiveness, from the point of view of society as a whole, as opposed to the point of view of a food pantry program, overall cost effectiveness is likely to be lower than our methodology

[4] Recall that the CAFB provides through its partner 33 million pounds of food annually to 478,000 people. This generates an average of 69 pounds per year provided per individual beneficiary. Much of the food distributed ion terms of weight is likely to come from somewhat inexpensive food items, so that the estimate of a benefit of $224 per family per year through an improvement in the value and benefits of the food that households purchase by themselves is not trivial.

suggests. One of the factors that lead to a relatively high multiplier is the fact that local food banks receive donations from USDA as well as corporations, but those donations – especially those funded by federal programs - are not free for society. Since only the point of view of a food pantry program is adopted here, these costs are not factored in the analysis, and as a result the multipliers tend to be overestimated from society's point of view. Also, when the food cost share of a program is low, this is typically because a program relies mostly on volunteers, but the opportunity cost of the time of these volunteers is also not taken into account. These caveats do not mean by any means that food pantry programs should not be encouraged as they clearly fill a need. They simply point to the fact that there are some costs not factored in the analysis provided in this paper, given its focus on helping pantry programs estimate their own cost effectiveness.

4. Conclusion

This paper has provided a simple methodology that can be used by food pantry programs to measure their cost effectiveness in transferring benefits to the poor. The results suggest that the cost effectiveness of such programs can be above one even if running the pantry programs involves non-food costs and even if targeting to the poor is far from perfect. This is because of differences between the cost of the food as purchased by the pantry programs from the local food banks and the market value at supermarket prices of the food being distributed.

Beyond the measurement of cost effectiveness, the methodology hopefully helps in understanding how food pantries could improve their cost effectiveness. Targeting performance can sometimes be increased by locating food distribution sites in areas of high poverty, and there is also a degree of self-targeting present in many food pantry programs due to the waiting time needed for beneficiaries to receive the food (and in some cases the stigma suffered by beneficiaries from having to rely on such programs). The price multiplier can also be increased by selecting foods needed by households that not only have a high nutritional value, but that also have relatively high mark ups in stores (that is, much higher prices than their cost at the local food bank). Alternatively, relying more on foods often made available for free by USDA to local food banks can also help in raising the value of the multiplier further. The share of food costs in total program costs can also be increased, for example by relying more on volunteers or achieving economies of scale (for example, relatively small programs that have high management and administrative costs may not be highly cost effective, but when such programs grow the management and administrative costs tend to be spread much more broadly).

In addition, another promising option would be to increase the overall value of such programs for beneficiary individuals and families, which could increase cost effectiveness even further. This could be done by adding creative components to the programs, such as nutritional coaching and guidance. Those as well as other ideas could help in making food distribution programs even more successful and cost effective than they may be today, and such creative elements may also reduce the stigma that sometimes remains associated with such programs.

References

Berner, M., and K. O'Brien, 2004, The Shifting Pattern of Food Security Support: Food Stamp and Food Bank Usage in North Carolina, *Nonprofit and Voluntary Sector Quarterly*, 33(4): 655-72.

Berner, M., T. Ozer, and S. Paynter, 2008, A Portrait of Hunger, the Social Safety Net, and the Working Poor, *Policy Studies Journal*, 36(3): 403-20.

Bhattarai, G., P. A. Duffy, and J. Raymond, 2005, Use of Food Pantries and Food Stamps in Low-Income Households in the United States, *The Journal of Consumer Affairs*, 39(2): 276-98.

Engler-Stringer, R., and S. Berenbaum, Exploring Food Security With Collective Kitchens Participants in Three Canadian Cities, *Qualitative Health Research,* 17(1): 75-84.

Eisinger, P., 2002, Organizational Capacity and Organizational Effectiveness among Street-Level Food Assistance Programs, *Nonprofit and Voluntary Sector Quarterly*, 31(1): 115-30.

Evans, S., and P. Clarke, 2010, Training Volunteers to Run Information Technologies: A Case Study of Effectiveness at Community Food Pantries, *Nonprofit and Voluntary Sector Quarterly*, 39(3): 524-35.

Food Research Action Center, 2013, Food Hardship in America 2012: Data for the Nations, States, 100 MSAs, and Every Congressional District, Food Research Action Center, Washington, DC.

Garasky, S., L. Morton, K. Greder, 2004, The Food Environment and Food Insecurity: Perceptions of Rural, Suburban, and Urban Food Pantry Clients in Iowa, *Family Economics and Nutrition Review,*16(2): 41-8.

Guo, B., 2009, Beyond the Public Safety Net: The Role of Nonprofits in Addressing Material Hardship of Low-Income Households, *Nonprofit and Voluntary Sector Quarterly*, 39(5): 784-801.

Jensen, J., C. Heflin, J. Hermsen, and S. Rikoon, 2011, Feeding the Hungry: Results from a Survey of Food Pantry Directors in Mid-Missouri, Truman Policy Research Report 12-2011, Harry S Truman School of Public Affairs.

Mosley, J., and L. Tiehen, 2004, The Food Safety Net after Welfare Reform: Use of Private and Public Food Assistance in the Kansas City Metropolitan Area, *Social Service Review*, 78(2): 267-83.

Murphy, C., S. Ettinger de Cuba, J. Cook, R. Cooper, and J. D. Weill, 2008, *Reading, Writing, and Hungry: The Consequences of Food Insecurity on Children and our Nation's Economic Success*, Partnership for America's Success, Washington, DC.

Nord, M., M. Andrews, and S. Carlson, 2010, *Household Food Security in the United States, 2009,* Economic Research Report No. ERR-108, U.S. Department of Agriculture, Economic Research Service, Washington, DC.

Tarasuk, V., and J. Eakin, 2005, Food Assistance Through "Surplus" Food: Insights from an Ethnographic Study of Food Bank Work, *Agriculture and Human Values*, 22:177-186.

Wodon, D., N. Wodon, and Q. Wodon, 2013, Thrift Stores Funding Food Pantries: A Win-Win Strategy for Nonprofits Serving the Poor?, Washington, DC: The Nonprofit Research Project.