Modernizing Arizona's Farmers' Markets through New EBT Projects: Expanding and Evaluating Access

Arizona State University of Tempe, Arizona received $61,893 to improve low-income consumers' access to farmers markets with EBT use and gathering data on both the utilization and effectiveness of the new Arizona WIC cash value vouchers program at 10 farmers markets.

Final Report FY09

Final Performance Report

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Project Summary

Introduction

As part of an earlier Farmers' Market Promotion Program grant to Arizona State University (ASU), a needs assessment survey was conducted among multiple farmers' market (FM) managers regarding how FMs' financial viability could be improved in Arizona. Of the various important pieces of information gathered from the survey, certain barriers to economic success and overall growth of markets were consistently identified by market managers. For instance, only 7 market managers noted that they could process credit/debit transactions and only 5 noted the ability to process EBT transactions. However, over half of respondents identified a lack of convenience when shopping for the customer as a barrier to success, and this included ability to process credit card transactions. This particular barrier was reiterated at in-person meetings with market managers, where multiple managers expressed interest in wireless terminals.

This project was developed to address this issue and to conduct research related to purchasing patterns overall at FMs. To accomplish this general aim, researchers developed two separate, but related studies. The primary study focused on providing wireless terminals to multiple farmers' markets (FMs) around the state of Arizona. Doing so, the research team hypothesized, would both increase access to markets for low-income individuals participating in the Supplemental Nutrition Assistance Program (SNAP), and increase general financial viability of participating markets. To this end, we developed relationships with multiple market managers who agreed to become SNAP-certified, accept a wireless terminal, and track sales data over the course of this study.

The second study included tracking redemption rates of purchasing tools related to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) at FMs. The research team worked with the Arizona Department of Health Services (AZDHS) to gather data on WIC cash value voucher (CVV) redemptions as well as Farmers' Market Nutrition Program (FMNP) coupons. We hypothesized that among WIC participants who received both CVV and FMNP, CVV usage would increase during the time of year that FMNP was available for use, because the two complement each other at markets. We secondarily hypothesized that CVV usage would be inversely related to distance between the closest FM and the issuing clinic (assuming that distance is a significant barrier to CVV use). Finally, we

hypothesized that FMNP redemption would be higher at markets compared to WIC-approved stores because FMNP coupons can more easily be completely used at FMs (where farmers can provide customers with amounts of produce that meet the dollar amount) compared to stores (that cannot provide change back on FMNP coupons).

Novel opportunities for farmers' markets in Arizona

Taken together, this proposal offered the opportunity to complete two major projects with the following sustainable results: 1) to improve access to FM's in Arizona through implementation of wireless terminals at markets that can use them, and 2) to conduct novel research on FM-related food assistance programs, data from which will continue to be important in future FM-related projects and issues. These separate, but related projects were conducted in a coordinated way through the Local Foods Lab of Dr. Wharton, and results are being compiled to be published so that they can be communicated to FM managers, USDA, other directors of statewide FM associations, and the scientific community at large.

Project Approach

For the primary EBT project, we issued an initial request for interested markets through an email distribution list for FM managers throughout the state. We asked that market managers who responded and requested a terminal prove, through a short written justification, that they had the capability to continue to use the terminals beyond the study period, as usage fees are applied month to month and markets must be able to handle those fees. Managers had two months to submit their request.

Over the course of two months, we recruited 8 markets into the study. Of these 8 markets, 5 agreed to track sales data over time. These market managers collected data for 10 weeks prior to terminal implementation, from July through September, 2009. They were then provided wireless terminals and during their next season, they collected another 10 weeks of data, from July through September, 2010. This controlled for seasonality when comparing pre- to post-terminal implementation.

We analyzed these data in a number of ways. First, we used a mixed-effects model analysis using weekly sales data as the dependent variable. We also considered time (pre- to post-intervention) within market datasets and adjusted for week of data collection to control for fluctuations in weekly sales. Lastly, we explored individual changes in average sales from pre- to post-intervention using Kruskal-Wallis rank order tests.

For the second project related to CVV and FMNP redemption, we worked with AZDHS to collect redemption data for CVV and FMNP over the course of 2009 and 2010. We then compared CVV use in 2010 when FMNP was not available to those months when both CVV and FMNP were in circulation. We compared redemption

rates only among WIC participants who received both purchasing tools using a standard *t*-test. We also compared the percent value of CVV redeemed at FMs versus WIC-approved stores using a *t*-test. Finally, we spatially mapped issuing clinics as well as the nearest FM that accepted WIC and FMNP purchasing tools and ran correlations to see if a relation existed between redemption rates and distance to market.

Goals and Outcomes Achieved

The ultimate goal of the project was to increase the number of FMs in Arizona by 10 that could accept EBT by using wireless terminals. We were able to reach 8 markets. However, because these markets are run by managers that run multiple other markets, and because those managers told researchers that they would use their terminals at more than one market, we felt confident that we in fact exceeded our original goal of 10 markets.

Secondarily, we were interested in assessing the impact of these terminals on EBT and overall sales, and we were interested in analyzing the impact of CVV and FMNP usage at markets on each other. Finally, we were interested in assessing whether distance to market had an impact on redemption rates. We accomplished all of these goals. In relation to EBT and overall sales, we were able to show that EBT sales went up at participating markets, ranging from $105-$557 dollars over the 10-week study period, compared to $0 at all markets before terminals existed there. We also showed that at 4 of 5 markets, overall sales increased significantly above and beyond EBT sales, ranging from $500-$4018 over 10 weeks (Appendix A). This was an important finding, suggesting that the convenience of card-based transactions is an important feature of financial viability, and low-income food access, of FMs.

Regarding use of CVV and FMNP, results were mixed and interesting. CVV use did not significantly increase during the period of time that both CVV and FMNP were available for use at FMs. This is likely due to the very low redemption rates of CVV at FMs (>99% of CVV is redeemed at stores rather than markets in Arizona). However, we did find that CVV value redeemed is significantly higher at FMs compared to stores (99% at FMs compared 93.5% at WIC-approved stores). This finding is important because it suggests that CVV is essentially more valuable at FMs because of vendors' ability to fully redeem CVV, compared to stores that have fixed prices and cannot offer change.

Finally, we found no relation between the distance of WIC CVV/FMNP-issuing clinics to FMs and actual redemption of those purchasing tools. This is possibly due to the fact that WIC participants could live significantly closer to, or farther from, FMs compared to the clinics they attend. As such, clinics are not good proxies for distance assessments in studies such as this.

In terms of outcomes, we achieved each of our goals and are very excited about the results of our studies. We plan now to publish on these various findings, with the hopes that other researchers will consider more economic analyses of markets. We also hope these findings will be useful to policy makers at the state and federal levels who are considering ways to improve the connection between food assistance programs and FMs.

All told, this project was extremely successful. We have built a strong databased foundation for future research on FMs and how they can address food security issues. We hope this will spur more research and funding in this area.

Beneficiaries

Our project benefitted a great number of individuals. In terms of monetary benefit, eight markets received wireless terminals. As our data showed, overall sales at markets increased at 4 of 5 locations and ranged from $500-$4018 over 10 weeks. Those markets, we conclude, are benefitting financially. Similarly, EBT sales increased from $0 to a range of $105-$557 over 10 weeks, suggesting improved access to markets by low-income individuals.

AZDHS also benefitted from these data, as health professionals at this agency are interested in promoting policy changes that improve the efficiency and effectiveness of SNAP. Our EBT study helped inform a policy document crafted for just this purpose. And, policies to support increased access to FMs were one of the highlighted recommendations in that document.

Finally, the WIC program benefitted from this set of studies. Because health officials at AZDHS now know that CVV can be more efficiently used at FMs, they can use this information to help promote increased use of CVV at markets to WIC participants.

We hope all of these benefits will be maximized with the publication of these data through greater scientific focus by researchers and greater consideration by policy makers.

Lessons Learned

We have learned a number of lessons from these projects. In particular, we have learned how potentially important modern technology is for FMs. Wireless terminals allow markets to overcome numerous barriers to increased sales by offering greater convenience to consumers. Because consumers purchase goods more and more via card-based transactions, the importance of wireless terminals cannot be understated.

We also have learned that CVV redemption is much too low at FMs, especially given the increased value of CVV when used at markets. We hope to publish this

information to spur efforts to education WIC participants about the benefits of using CVV at markets, and in conjunction with FMNP benefits when available.

Additional Information

In terms of project partners, Allison Parisi-Giles was invaluable in her efforts to provide us the data needed to conduct analyses. She was able to facilitate connections to epidemiologists and others in control of data at AZDHS, and she helped us find markets at which to run our study. Other relevant information to help describe our accomplishments can be found in our appendices, including a chart describing increased sales with introduction of terminals (Appendix A).

We would like to thank the USDA for its support of our projects. We believe we have gathered important scientific and policy-relevant data for the local foods community to consider. Please feel free to contact Dr. Wharton, whose contact information is below, for further information you may require.

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Appendix A

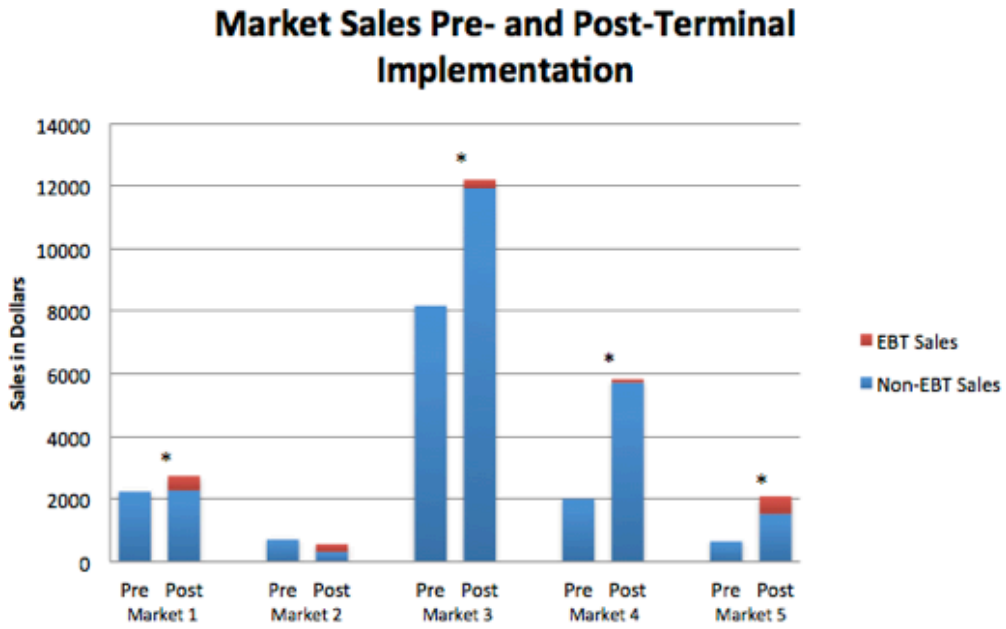

FIGURE 1-Comparison of sales pre- and post-wireless terminal implementation.

***Differences from pre- post-intervention significant at p<.01 based on Kruskal-Wallis rank order non-parametric test.**