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Impacts of Community Supported Agriculture Program Participation on Consumer Food Purchases and Dietary Choice

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Abstract

Few studies have assessed changes in dietary choice and food preparation habits through community supported agriculture (CSA) program membership. If CSA program participation does indeed produce attitude and behavioral change in its participants, public policy encouraging CSA program membership, such as is currently done with farmers' markets, would provide another vehicle for fostering dietary improvements, especially in areas where farmers' markets may not be available or accessible for targeted populations. This study attempts to explore the effects of CSA membership on consumer dietary choice and nutritional intake, as well as the potential modifications in food purchase, preparation and dining out practices.

Keywords: CSAs, dietary choice, consumption patterns, fresh produce

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Introduction

Community Supported Agriculture (CSA) programs have been shown to be a viable networking and direct marketing approach, providing benefits to both farmers and consumers alike (Brehm and Eisenhauer 2008; Curtis 2011; Conner, Colasanti, Ross and Smalley 2010; Thilmany, Bond and Bond 2008). CSAs in particular provide an opportunity for consumers to experience new foods, develop new social networks and reconnect community members with the land and the traditional practices of agriculture (O'Hara and Stagl 2001). Furthermore, a number of studies have discussed behavioral changes in relation to other purchasing decisions based on the knowledge acquired through CSA partnerships (Russell and Zepeda 2007).

The majority of nutritional research into direct markets, such as farmers' markets, has revolved around the impacts of public programs on fruit/vegetable consumption among low income families and home-bound senior citizens (McCormack et al. 2010; Johnson, et al. 2004). Few studies have assessed changes in dietary choice and food preparation habits through CSA membership. If CSA program participation does indeed produce attitude and behavioral change in its participants, public policy encouraging CSA program membership, such as is currently done with farmers' markets, would provide another vehicle for fostering dietary improvements, especially in areas where farmers' markets may not be available or accessible for targeted populations. This study attempts to explore the effects of CSA membership on changes in dietary choice and nutritional intake, as well as the potential modifications in food purchase, preparation and dining out practices.

Literature Review

Programs that connect consumers to local food sources have gained momentum in recent years. Frustrations with the conventional, or globalized, food chain have brought local growers together with consumers in a variety of innovative alternative food networks (Cox et al. 2008). CSA programs, started as a local community food system in the US in the 1980s, unite farmers and community members through a sustainable partnership that involves the direct sale of farm produce through weekly pre-paid baskets during the growing season (Bougheraraa et al. 2009). It has been argued that through the shortened supply system, farmers are able to sell their produce at a higher price and consumers are provided access to high quality, safe, and better tasting produce, commonly at lower prices than are available in traditional grocery outlets (Cooley and Lass 1998; DeMuth 1993).

Research on consumer motivations and satisfaction from CSA program participation is prevalent in the literature. Cooley and Lass (1998) and Cone and Myhre (2000) found that consumers join CSA programs because of their concern for the environment, a desire for fresh food, and to support local food sources. Sabine and Stagl (2001) determined that a sense of community connectedness, through interaction between food producers and consumers, was another strong motivator. However, retention rates have shown to fluctuate year-to-year due to the provision of too much produce which is later wasted (Kane and Lohr 1997), a lack of variety and choice within the baskets (Cooley and Lass 1998), and the inconvenience of pick-up locations and times (Lang 2005).

A number of researchers have also documented changes in consumer behaviors and values as a direct result of their involvement with CSAs. O'Hara and Stangl (2001) found that consumers' environmental concerns grew stronger over the course of CSA membership, resulting in a desire to eat produce while it was in season and a desire to reduce packaging waste. Russell and Zepeda (2007) argue that it is precisely because of these attitudinal changes that consumers continue to participate in CSA programs. Ostrum (1997) found that not only were eating habits affected, but changes in other consumption patterns resulted. Therefore, CSA members tend to develop a stronger sense of community because consumers believe buying local is better for the environment, the health of the community, and the health of their family members.

Exposure to locally sourced, organic produce has also been shown to affect food-related behavioral changes over time. Perez et al. (2003) discovered that CSA participants were likely to eat more fruits and vegetables and to cook more creatively. Russell and Zepeda (2007) claim that these changes, along with increased consideration of food seasonality, are a direct result of the educational components of CSAs, including farm visits, newsletters, recipe exchanges, and increased interactions between farmers and other health conscious consumers. Examples of specific changes found in Russell and Zepeda's study include planning meals around available produce, exploring new foods, freezing or storing excess vegetables, and reductions in meat consumption.

However, specific changes in dietary practices and eating patterns have seldom been empirically studied. Conrey et al. (2003) investigated the changes in nutritional health for the WIC (Women, Infant, and Children) public voucher system. By including coupons that could be redeemed at local farmers' markets, they found that increased fruit and vegetable consumption was directly related to the nutritional information which supplemented the program. Dollahite et al. (2005) found that farmers' market access for low-income families was a barrier to the WIC program in their study. In a program where CSA baskets were delivered directly to home-bound seniors, Johnson et al. (2004) found participants increased their produce intake by a full serving per day, however they attribute this success to "innovative partnerships and concurrent efforts at the individual, institutional, community, and policy levels" (Lea et al. 2006) found that the inclusion of locally-sourced salad bars in the Australian public school system encouraged an increase of produce consumption in both students and staff.

However, an empirical study of diet changes, changes in food preparation habits, and the prevalence of food consumed outside the home involving voluntary members of CSA programs has not yet been published. This study examines the impacts on fruit/vegetable consumption patterns and the preparation of nutritionally enhanced meals by active members of a CSA program in Logan, Utah in 2012. It is proposed that if a healthier pattern of food consumption results from CSA membership, public policy may have a new avenue to foster dietary improvements.

Methodology

A total of 15 participants in four CSA programs in Logan, Utah took part in this study. A series of pre-program, monthly, and post program surveys were administered to the participants during the summer and fall of 2012. As a supplement to the self-reporting surveys, participants submitted their monthly grocery store and other food purchase receipts (June to December 2012).

Additionally, all contents of participant weekly CSA shares were tracked by item and weight. These data sources allow for comparisons prior, during, and after CSA program completion. Nutritional/dietary intake information was taken from grocery receipts and CSA basket content, while the survey data provided stated information on changes in dining out and food preparation behavior, such as the use of new, unfamiliar food varieties, changes in the quantity of meals consumed outside the home, and attitudinal changes in fruit/vegetable consumption and food preparation.

Monthly surveys included questions such as the percentage of CSA basket contents consumed, the use/preparation of unfamiliar foods; the storage (canning, freezing or drying) of excess produce, the use of CSA provided recipes, and the number of meals consumed at home on a weekly basis. A two-mean sample comparison t-test was completed to measure significant changes at the 5% level in the first four months so far completed in the study.

Results

As this study is still in progress, only preliminary results are presented here. Results from the pre-program survey, such as food consumption and purchase habits, CSA membership motivations, conservation habits, food attribute preferences, and socio-demographics are presented. Additionally, the results compiled from the first four monthly surveys are provided.

The project participants were all active members in a CSA program in Logan, Utah. A total of 16 participants completed the pre-program survey in which 81% were female, 75% were married, nine had children under the age of 17 present in the home (56%), 76% Caucasian, and 5.9% Asian or Hispanic. There were seven participants who reported incomes less than \$50,000 and eight participants who reported household incomes above \$66,000. Eighty-one percent had a four-year degree or higher, with 38% employed full time and 31% employed part-time. Two respondents were homemakers and three were students (see Table 1 in Appendix).

The participants were asked to rank the importance of product attributes on a scale of 1 (not important) to 5 (very important). Taste received a score of 4.5, followed by quality (4.4) and freshness (4.1) (See Figure 1). When asked to rank food related concerns, using the same scale, concern over diet ranked highest (4.6) followed by supporting local farmers (4.4) and food safety (4.4). Over 75% of the participants supplemented their CSA membership with trips to the local farmers' market, and 56% shopped four to seven times each week at their local grocery store.

At this point in the study, only the change in the produce storage (canning, freezing or drying) is significant at the 5% level with only 33% of the participants engaging in the storage of food in July and 72% in October (see Table 2). While not statistically significant, basket usage peaked in August, with 93% of the basket items consumed, but dropped to 87% in October. Additionally, at the start of the CSA season, 72% of the participants were using foods that were previously unfamiliar to them, but by October only 45% made the same claim. The use of CSA provided recipes steadily declined throughout the four months, starting with 50% in July and dropping to 27% by October. The average number of meals consumed at home increased slightly, peaking in October at 18.6 (out of 21 possible).

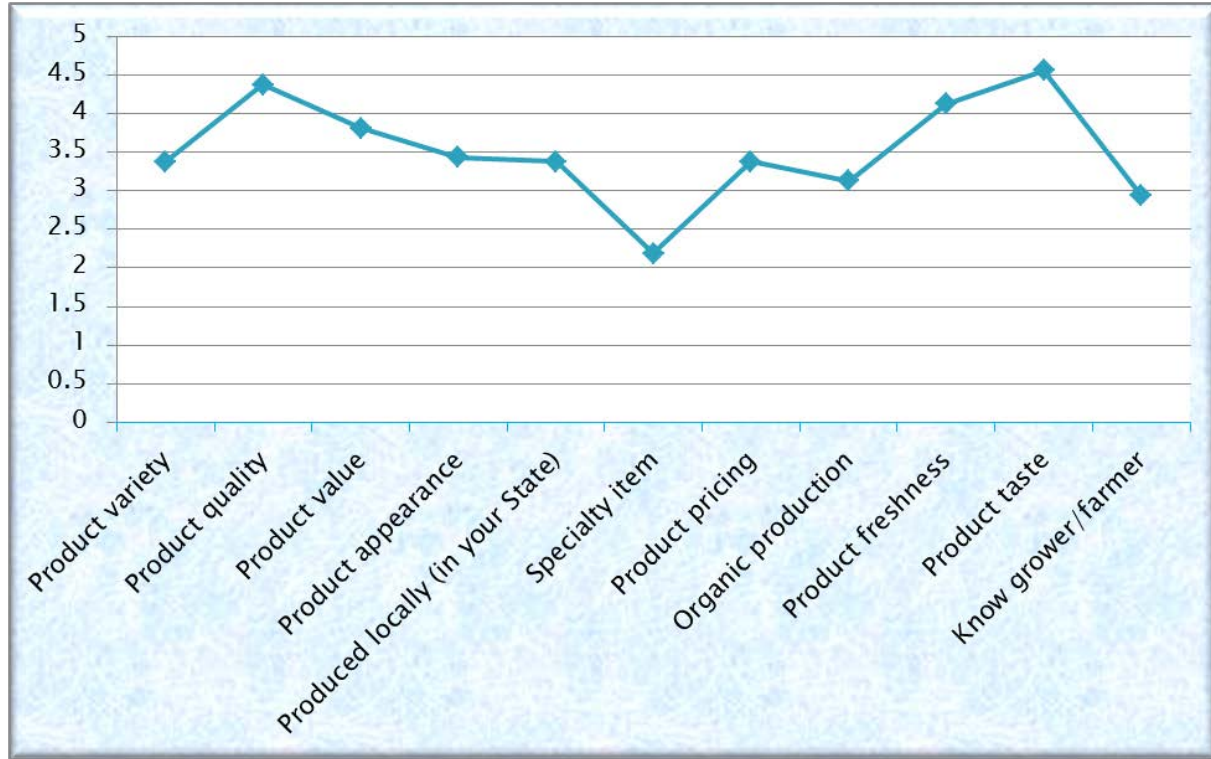


Figure 1. Importance of Product Attributes (Scale of 1-5)

Table 2. Monthly Survey Results: Changes in Food Consumption/Preparation

Variable	Mean	Std. Dev.	T =
CSA basket usage percentage			
July	.890	.164	0.276
October	.872	.151	
Use/preparation of unfamiliar items			
July	.727	.467	1.291
October	.454	.522	
Storage (can, dry, freeze) of basket items			
July	.333	.492	-1.964*
October	.727	.467	
Use of CSA provided recipes			
July	.500	.522	1.096
October	.273	.467	
Average number of meals consumed at home			
July	17.182	3.281	-0.640
October	18.636	6.786	

* Represents significance at the 5% level.

Conclusions

This paper provides preliminary results of a study exploring the effects of CSA membership on consumer dietary choice and nutritional intake, as well as the potential modifications in food purchase and dining out practices. Study results show that CSA participants are primarily highly educated females at average income levels with health and food safety concerns. They participate in recycling and home gardening activities, and join CSAs to support local farmers and purchase fresh local foods. Results show a shift in food preparation habits as CSA membership led to increased consumption of meals at home and storage of food items. Research shows that the prevalence of obesity is influenced by the number of meals consumed away from home (French et al. 2002), likely due to the larger portion sizes offered (Rolls et al. 2002). Convenience, income, and familiarity with food preparation are considered the major driving factors in the proportion of restaurant meals consumed (Glanz et al. 1998, Condrasky and Hegler 2010). Future research in this study will focus more on food consumption and nutritional/dietary change pre and post CSA program participation.

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Appendix

Table 1. Pre-Program Survey Statistics

Variable	Description	Frequency	Percentage
Gender	Male	3	18.75%
	Female	13	81.25%
Marital Status	Married	12	75.00%
	Single	4	25.00%
Income	under 20 K	1	6.25%
	20-36 K	3	18.75%
	37-50 K	3	18.75%
	51-65 K	0	0.00%
	66-79 K	3	18.75%
	80-105 K	3	18.75%
	105 K +	1	6.25%
	N/A	2	12.50%
Education	Middle School	0	0.00%
	High School	2	12.50%
	Some College	1	6.25%
	2-year	0	0.00%
	4-year	8	50.00%
	Graduate	5	31.25%
	Employment Status	Full-time	6
Part-time		5	31.25%
Unemployed		0	0.00%
Homemaker			12.50%
Retired		2	0.00%
Student		3	18.80%
Ethnicity	African American	0	0.00%
	Asian	1	5.88%
	Pacific Islander	0	0.00%
	Caucasian	13	76.47%
	Middle Eastern	0	0.00%
	Native American	0	0.00%
	Hispanic	1	5.88%
	N/A	2	11.76%

Table 1. Pre-Program Survey Statistics *Cont.*

Variable	Description	Frequency	Percentage
Preferred basket size	1-2 people	7	41.18%
	2-3 people	8	47.06%
	3-4 people	2	11.76%
How did you hear about CSA	Word-of-Mouth	8	47.06%
	Flyer/Poster	1	5.88%
	Newspaper	1	5.88%
	Farmers' Market	1	5.88%
	Website	2	11.76%
	Facebook	1	5.88%
	Email	1	5.88%
	Other	2	11.76%
Consumer categories	Omnivore	12	75.00%
	Vegetarian	2	12.50%
	Vegan	1	6.25%
	Raw Food	0	0.00%
	Other	1	6.25%
Primarily grocery purchases	Grocery Store	14	87.50%
	Bulk Store	1	6.25%
	Multi-purpose Store	1	6.25%
	Specialty Store	0	0.00%
	Discount Store	0	0.00%