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Consumer Benefits from Community Supported Agriculture Membership

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Community Supported Agriculture (CSA) is a recent institution in agriculture. In CSA, both the farmer and consumer share the risks and the bounty of farm production. This study focuses on consumer benefits from CSA membership, especially cost savings. To estimate consumer cost savings, quantities of produce in weekly shares for three CSA farms in Massachusetts were measured and retail values calculated. Cost savings were calculated as the differences between share prices and retail values for three CSA operations. Benefits ranged from 60% to 150% of share prices for the CSA farms studied, based on retail prices for organic produce.

Community Supported Agriculture (CSA) is a recent institution in the United States. It was introduced in the mid 1980s, imported from Germany and Switzerland. The U.S. roots are in Massachusetts where an American, Jan Vander Tuin started a CSA with Robyn Van En in Great Barrington. A similar project was developed in New Hampshire under the guidance of Traugher Groh who had developed a CSA in Germany. CSA operations now exist across the U.S., Europe and Japan (Suput). Initial literature on CSA was provided by Berry (1977) and Whatley (1987). The CSA philosophy has been nurtured by the works of Groh and McFadden (1990) and Van En (1992). Van En (1992) and Van En and Roth (1992) provide useful and practical introductions to the concept of CSA; an annotated bibliography is available through the National Agricultural Library (DeMuth).

In the United States, CSA was born out of the desire for sustainable and cooperative farming. The concept combines ecological farming with bringing the consumer closer to the farmer and the farm (Pilati). Called "seikatsus" in Japan, this approach to agriculture describes a system of providing "food with the farmer's face on it" (Van En 1992). In a CSA organization, the farmer and a group of committed consumers share both the bounty and the risks of farm production. During the winter marketing phase, a CSA operator develops a budget, divides these costs into shares, and offers shares to consumers. Consumers purchase shares (providing financial support for

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the farm) and receive fresh produce and other products weekly from the farm. The farmer can then focus on production during the growing season without the added effort and stress required for marketing.

This relationship is multifaceted; first, members receive fresh produce and products sustainably grown, and second, member support enables the farmer to focus on land stewardship and maintain a productive and profitable farm. The community reaps benefits from retaining a working landscape and a local supply of food. CSA is what Kelvin (1994) calls "a dynamic social interaction" involving economic, social, environmental, and philosophical principles that challenge its participants to re-evaluate their community, their food system, and their role. CSA represents an important new alternative relationship between farmers and consumers in today's industrialized food system. CSA is not only helping to sustain the economic viability of individual farms, but it also has the potential to make a significant contribution toward revitalizing Northeast agriculture.

Benefits to CSA shareholders include fresh, high quality, organic produce provided by a farmer they know. Knowing the farmer may provide members a feeling of trust about food safety and confidence about reduced exposure to pesticides and other chemicals, hormones and antibiotic residues on food. In some areas of the U.S., a CSA arrangement may be the only way for consumers to access a steady supply of organic foods (ATTRF 1995).

Education is another benefit for members who work closely with the farmer in planning for the growing season. Members and their children become more aware of the environment and its links to food production. Members gain a stronger understanding of the relationship between sustainability and the environment. Members are often encouraged to come to the farm to pick up their produce and to enjoy the surroundings. Families can observe or participate in production and introduce their children to agriculture. Many farms also provide social functions for shareholders. CSA operations may also seek shareholder feedback on selection of crops or other organizational issues. The members can truly feel a part of the farm operation.

We focus on consumer benefits from CSA membership in this study, especially the potential cost savings the CSA share provides. To estimate potential savings to CSA shareholders, the items included in CSA shares from three different farms were valued at retail level prices and compared to the CSA farm price for a full share. In the sections that follow, we first present results from a shareholder survey that asked about a number of different benefits from CSA membership. We then discuss the procedure for determining the retail value of a CSA share and the potential cost savings. Finally, results are presented for the retail valuation of shares for three different CSA operations in the Amherst-Massachusetts area.

CSA Shareholder Benefits: Survey Results

CSA members in the Amherst-Massachusetts area were asked about their motivations for joining a CSA and the benefits they felt they received in a 1995 mail survey (Cooley; Cooley *et al.*). Current membership lists were obtained from four CSA farmers in the greater Amherst–Massachusetts area and a sample was randomly selected from that list. The combined household memberships totaled 713; a sample

of 275 member households was drawn. Following the Total Design Method (Dillman), the survey was mailed in November of 1995 at the conclusion of the CSA season. A follow-up postcard was mailed one week after the initial survey. Three weeks after the initial mailing, a letter was sent informing non-respondents that their questionnaire had not been received, restating the basic appeals, and including a replacement survey questionnaire. The response rate was 71% with 192 useable survey questionnaires. The distribution of the respondents was similar to the membership distribution across the four CSA farms.

Quality of produce was cited by 93% of the members surveyed as an important reason for joining a CSA. When asked what was the most important reason for joining, 34% chose quality of produce. Support for local farming was also an important factor for 97% of the CSA members surveyed. Support for local farming was chosen as the most important reason by 17% of the members surveyed. While support for local farming was an important reason for most respondents, Cooley (1996) found that knowing the farmer was important to only 29% of the CSA members surveyed (74). Other important reasons for membership included environmental concerns (72%), food safety concerns (59%), and community service provided by the farm community such as food donations (59%).

CSA membership is certainly not for everyone. Disadvantages of CSA membership may include a limited choice of produce as well as the seasonality of production. While many members undoubtedly find visiting the farm a rewarding experience, others may find pick-up times and visits to the farm inconvenient. In addition, consumers may be uncertain about the monetary value of their CSA share and about the possibility of a bad season.

CSA members in the Amherst area were asked what disadvantages they found in membership (Cooley). CSA members were generally quite satisfied with their CSA. Only 14% indicated a lack of variety in the produce provided and 11% of the members were concerned about their lack of choice. Twenty-four percent indicated that too much produce was provided, resulting in waste. While many families found visiting the farm pleasant (38% believed the farm exposure was important for their children), 23% found it inconvenient to go to the farm.

Very few of the CSA members surveyed, about 2%, were concerned about the value of their share (Cooley, 75); however, a large proportion of the respondents did not perceive large cost savings from membership. Nearly half of the respondents believed that their CSA produce cost about the same or more than comparable items in local stores (Cooley, 93). CSA operations typically price shares according to a distribution of farm costs of production among shareholders. Transportation, packaging, and other marketing costs are lower in a CSA arrangement. Thus, while shareholders do not perceive large savings, they can reap significant monetary benefits. We consider these potential savings next.

Valuation of CSA Shares

CSA shares are valued uniquely. Rather than acting as price takers in the market, a CSA operation prices a share according to a distribution of the farm's cost of production. Total cost of production is divided by the number of shares offered to establish the share price. Total cost of production should reflect a fair or living wage

for the farmer as well as payments to all factors of production. The comparison made below is between the CSA share *price* (the cost per share that members pay) versus a *retail value* for the same amount of produce from an alternative source, such as a supermarket.

In the discussion below, we first focus on the method for calculating the retail values of CSA shares. The retail value represents what consumers would pay for their produce if they were not CSA members. After discussing the methods used, retail values will be calculated for three different CSA farm shares. These retail values will then be compared to the actual share prices paid by members to estimate the monetary benefits of CSA membership.

To estimate a consumer's retail value for their CSA share, the following procedure was followed. Data on the distribution of produce in the CSA share were gathered each week on pick-up day. Each CSA included in the study listed the amounts for each item on a blackboard. Weights for every item in the share were recorded. If items were offered to the members in number rather than weight, three different samples were carefully weighed. The average of the weights for the three different samples was recorded as the weight for that item. For example, if the share was to include five tomatoes, three different samples of five tomatoes each were weighed and the average of the three weights was recorded for the share. Detailed data on the quantities of produce were gathered in this manner for each week of the season.

For the three different CSA farms studied, the season ran from late May or early June through November or early December of 1995. Herbs and flowers that were included in some shares were not included in the cost comparison. Consequently, members received additional value that is not included in the estimates presented below.

To determine the retail value of a share, price data were gathered from three common grocery markets where consumers could purchase produce. These retail prices were then used to determine the retail value of a CSA share as

$$(1) \qquad S_t^{jk} = \sum_{i=1}^{n} w_{it}^{j} p_{it}^{k}$$

where S_t^{jk} is the retail value of CSA j's share in week t using grocery k's prices, w_{it}^{j} is the weight of item i in CSA j's share in week t; and p_{it}^{k} is the price of item i at grocery k in week t.

To estimate the retail value for each CSA farm's share for the season, we simply sum the weekly share values for all weeks:

$$(2) \qquad S^{jk} = \sum_{t=1}^{T} s_t^{jk}.$$

Following this procedure, the retail value of a CSA operation's share for a full season can be estimated for a particular alternative grocery.

Ideally, the retail value of each consumer's share would be the retail value at the most likely alternative source for their produce. For example, if they purchased all their produce during a weekly shopping trip, then the share value would be based

upon price data from their most frequent shopping location, perhaps a national food chain. If the consumer seeks an alternative source of comparable organic produce, then the best estimate of their retail value would be the nearest natural or organic food store. Lacking data on consumer preferences for various groceries, we computed CSA share retail values for three different types of groceries: a national food chain selling mostly conventional produce; a regional chain selling both organic and conventional produce; and a local store that sells locally grown conventional produce.

Valuation Results

Share values were compared for the three farms and the three groceries. The farms differed in terms of the resources available and the number of members served. Sufficient data were not available to estimate the impacts of these factors on farm productivity and share values. However, it is important to note these differences and to discuss the possible impacts on share values.

Characteristics of the three farms that participated in the study are presented in table 1. There were a number of differences and similarities across the three farms. The CSA operations of farms 1 and 3 were of similar size in terms of membership. The share prices were also identical at $450 per full share. The amount of produce in a full share for these two farms was also similar; farm 1 provided 24.7 pounds per week on average, while farm 3 provided about 27 pounds per week. Both farms used machinery for planting and cultivation and irrigated a significant portion of their cropland. These two farms also had an apparent advantage in terms of their soil quality, although complete data on soil quality were not available.

Farm 2 avoided using machinery, did not irrigate, and was smaller both in terms of acreage in vegetables and the number of CSA members. Farm 2 produced about 8.5 pounds of produce weekly for their members at a price of $250 for the year. The differences between these farms reflect resource constraints and cultural practices. The characteristics presented in table 1 indicate not only resource limitations that may affect productivity and share value, but also CSA philosophy. For example, the operators of farm 2 chose not to use machinery because its use was not consistent with their definition of sustainable farming. These differences in CSA characteristics represent opportunities for consumers to make choices about the type of farm they want to support through CSA membership.

The CSA price comparison was completed by determining the composition of each farm's share every week throughout the season and then pricing the same basket of produce at the three different retail groceries. During several weeks of the growing season, items included in the CSA shares could not be found in one or more of the three stores. In those cases, the average price per pound for the season was used. Season average prices for all items included in the CSA shares are presented in Appendix 1: "Seasonal Average Prices." Prices for a number of items, primarily organic products, were not available in the stores for the entire growing season. An average price was estimated for these items based on the average price for the same conventional product adjusted by the difference between average organic and conventional prices for all products. For example, prices were unavailable for organic brussels sprouts for the entire season. The season average price for conventional

Table 1. Characteristics of the three CSA farms participating in price comparisons

CSA Farm Characteristic	Farm 1	Farm 2	Farm 3
Number of Members	300	65	325
Share Price ($)	$450	$250	$450
Average Pounds per Weekly Share[a]	24.70	8.52	27.03
Number of Acres in Vegetables	13	3.25	33
Soil Type	Sandy Loam	Sandy Loam	Hadley Loam
Stones in Soil	No	Yes	No
Number of Irrigated Acres	6.5	None	31
Mechanical Planting or Cultivation[b]	Yes	No	Yes

[a] Average pounds per share weekly for produce during 1995, excluding winter pickups.
[b] Use of machinery on the farm for planting and/or cultivation.

brussels sprouts was multiplied by 1.5122, the ratio of average organic price for all items to average price for all conventional items. This procedure assumes that the price difference between organic and conventional brussels sprouts is the same as that of the average for all items. The items, for which missing prices were encountered for the entire season, are also presented in Appendix 1.

The results of our retail valuations of CSA shares are presented in table 2. All three farms produced organically. Thus, the most appropriate retail values are those in column four, which were calculated using organic produce prices from the regional grocery. The share of farm 3, which provided members a larger basket of produce, had the greatest retail value at $1,133. The retail value for the farm 1 share was $998 and the value for the farm 2 share was $399. Retail values of the shares using the regional grocery conventional produce prices ranged from $833 (farm 3) to $312 (farm 2). The lowest retail values were calculated using the prices from the local store that sold locally grown conventional produce. The range of retail values was $729 (farm 3) to $267 (farm 2).

Comparing CSA share costs to retail values of the same market baskets of produce provides a measure of consumer benefits from membership. The results in table 2 show that shareholders for each of the three CSA operations received considerable benefits from CSA membership. Again, the best comparison is of CSA share price and the retail value of organic produce. Retail values for the shares of farm 1 ($1,133) and farm 3 ($998) were more than double the CSA share costs of $450. Consumer savings were $683 for farm 3's share and $548 for farm 2's share. A CSA share from farm 2, which cost $250, provided members $149 in savings. The results in table 2 clearly demonstrate that consumers seeking organic produce received substantial monetary savings from membership in these three CSA operations in 1995.

Comparisons of CSA share prices to retail values for equivalent amounts of conventional produce also showed substantial consumer savings. Consider the comparison of share price versus the cost of the same conventionally produced bundle at the national chain store. This comparison is important because the national chain represents a store with a relatively large market share and obtaining produce during a weekly shopping trip may be the most likely alternative for many members. We found farm 1's members saved $227 and farm 3's members saved $335 on their $450 shares by this comparison. Farm 2's members saved $45 by purchasing their