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Costs and Returns for CSA Operations in the Northeast Preliminary Results from the 1996 CSA Survey.

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Introduction

It seems to be a popular misconception that economics is a discipline that focuses on the dollars and cents of an issue or problem. Economics is defined as the study of the allocation of scarce resources among competing end uses. With just a little creativity, we can mold that definition to fit any number of issues or problems. Economics is applied to a diverse range of issues from agricultural production to environmental degradation to political economy issues such as gender equality in labor markets.

It is not uncommon to be faced with allocation problems where the benefits and costs of a decision are poorly measured by market prices. Many allocation decisions affect the welfare of individuals and society as a whole, quite possibly through external costs or benefits that are associated with individual decisions. Where external benefits and costs are involved, market prices do not reflect actual costs or benefits. This is exactly the case in considering *the economics of CSA*. CSA operations provide measurable benefits to consumers through their shares, but they also provide external benefits that are not easily valued. Important benefits from CSA operations include the elimination of harmful effects associated with agricultural chemicals. Thus, external costs are negligible or zero. CSA operations provide environmental benefits, community functions, education for shareholders and their families, as well as other creative services. A complete accounting of all these benefits is an important part of *the economics of CSA*.

Having argued that a proper economic analysis of CSA is complex and should include many nonmonetary benefits, we are going to avoid many of these issues in this paper. We will focus on a small part of the overall picture. Our focus here will be on just the measurable costs and returns of CSA farm production. We will consider only the private costs of production borne by the CSA operation, those costs associated with producing crops. The returns that are considered below include only the returns to the CSA through sale of shares. Other benefits to the shareholders and the community, while important, will not be included in our analysis.

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1996 CSA Survey

The results presented here are part of a larger research project supported by Northeast SARE. The objective of the project is to enhance the viability of CSA operations in the Northeast through outreach and research. Our focus at the University of Massachusetts is research on the viability of CSA operations. To address that issue, surveys of CSA operations were conducted in 1996 and 1997 to collect data on CSA costs and returns for the previous years (1995 and 1996). A third survey will be conducted in 1998 to gather data for 1997. Our goal is to develop a panel data set for CSA operations.

The analysis presented here utilizes the 1996 survey data. The survey was conducted in March of 1997. A total of 74 surveys were mailed and 26 returns were received for a response rate of 35 percent. The survey was designed to gather detailed information on CSA returns, production levels, and costs. Additional information was collected on CSA labor and crop production methods, especially weed, insect and disease control. We also collected a limited amount of information on characteristics of the farm operator and the type of CSA organization.

Returns and Costs for 1996 CSA Operations

A brief depiction of the average CSA operation is presented in Table 1. The average amount of cropland on these 26 farms was approximately 23 acres. Of that, about 11 acres were used for the CSA operation. Respondents provide an indication of gross farm income through a categorical variable. On average, gross farm income was between $30,000 and $39,999 in 1996. The average reported CSA income for these farms was $35,567.65.

A number of different shares were produced by these CSA operations. Data were collected on six different types of shares, both non-working and working shares. Average number of each type of share and the share prices are presented in Table 1. In order to compare CSA output, we calculate the number of full share equivalents for each farm. To do this we assumed that share prices reflected the relative values of each type of share. We then aggregated the different shares weighted by their price relative to that of a full share. It would have been preferable to aggregate based on the pounds of produce in each share. However, detailed data on the weight of each type of share were not available. On average, these 26 CSA operations produced the equivalent of about 77 full shares. Data were collected on the amount of produce provided in a full share. We found a full share to include about 404 pounds of produce, on average.

Average returns and costs reported by these 26 CSA operations are presented in Table 2. A number of farms sold produce at other markets, and the data here are only for the CSA enterprise of the farm. Table 2 presents a picture of returns and costs for the average CSA as well as returns and costs *per share* based on the average of about 77 full shares. The average CSA operation provided $35,567.65 in revenues for the farm, which represents about $464 per share. Expenses are divided into labor expenses and other cash expenses. Included in other cash expenses are a number of items such as seeds, plants, fuels, supplies, depreciation, interest, taxes

Table 1. Descriptive Statistics for Northeast CSA Operations - 1996.

Number of Acres: Total Cropland	23.19 Acres
Number of Acres: CSA Operation	10.79 Acres
Total Gross Farm Income (Average Range)	$30,000 - $39,999
Total CSA Income	$ 35,567.65
Total Non-Farm Income (Average Range)	$ 5,000 - $ 9,999

Number of Shares:	Number	Price ($/Share)
Full Non-Working	33.35	408.38
Individual Non-Working	28.15	261.00
Half Non-Working	29.46	245.82
Full Working	7.54	218.50
Individual Working	3.62	136.67
Half Working	0.42	123.75
Other (Institutional, Senior, etc.)	1.85	268.75
Equivalent Number of Full Shares	76.58	408.38
Average Weight (Equivalent Full Shares - pounds)	403.47	

and other miscellaneous expenses. We tried to be very careful to capture all costs for the CSA operation. The labor expenses presented in Table 2 are only those costs reported by the CSA. The labor expenses would cover wages paid to all hired labor as well as social security taxes, fringe benefits and other labor costs. Importantly, these are only the labor expenses that the CSA reported. Total cash expenses were $34,440.61 leaving a positive net income for the average CSA operation of $1,237.04, around $16 per share. Since the objective of CSA operations is to provide produce at the costs of production, these numbers seem right on target.

Table 2. Average Reported Income and Cost for Northeast CSA Operations - 1996.

	Averages	
Income and Cost	$ / Farm	$ / Share
CSA Income (Reported)	35,567.65	464.44
Cash Expenses:		
Labor Expenses	17,777.57	232.14
Other Cash Expenses	16,553.04	216.15
Total Cash Expenses	34,440.61	449.72
Net Income	1237.04	16.15

The average costs and returns suggest that CSA operations in 1996 were meeting their goals, on average. Of course, the averages presented represent the middle of the distribution of returns and costs. The figures in Table 2 also hide the fact that many CSA operators did not pay themselves a wage or salary. Many farms left operator wages or salary blank and many indicated that they took what was left over. This is a typical practice for farms, whether or not they have a CSA operation. If the CSA operator accepts what is left over, then $1237.04 is available as a living wage.

As an alternative, total economic costs of production were computed for each CSA operation. Total economic costs include not only those factors that have explicit costs, but also the opportunity costs of those factors that were not paid an explicit cost. To compute total economic costs for these CSA operation, we must value all labor according to an opportunity wage, including labor provided by the operator.

The CSA survey form included questions that allowed us to estimate the total hours of labor used on each CSA operation. These data were collected for operator labor, other hired employee labor, unpaid labor and shareholder labor. Table 3 presents averages for total annual hours of each type of labor. To impute the opportunity costs of labor, we used wages of $10.00 per hour for operator labor, $7.00 per hour for other hired labor and $5.00 per hour for unpaid labor. These wages were based on wage rates reported in the 1996 survey. The average CSA operation used a total of 3,762 hours of labor annually. This represents about 49 hours annually per full share, based on our estimate of 77 full shares. The imputed value, or opportunity cost, for this farm labor was $26,679.42 per year; shareholder labor was not included in the imputed value.

Table 3. Reported Hours of Labor and Imputed Wages for Northeast CSA Operations.

	Annual Averages		Imputed Value	
Labor Category	Hours per Farm	Hours per Share	Wage $ / Hour	Annual Value $ / Year
Operator Labor	1,379.38	18.01	$10.00	13,793.85
Other Hired Employees	1,654.53	21.60	7.00	11,581.72
Unpaid Labor	260.77	3.41	5.00	1,303.86
Shareholder Labor	467.60	6.11	NA	NA
Total Labor	3,762.29	49.13		26,679.42

CSA net income or net returns change considerably when the opportunity costs of all labor is included. Table 4 presents a revised picture of CSA returns and costs. In addition to the imputed wages of $26,679.42, we add other labor costs such as fringe benefits and contract labor expense. Most all expenses in this item are from fringe benefits paid to hired workers; we found that very little contract labor was employed. Total expenses increase to $44,803.81 and these costs should more nearly reflect the total economic costs of producing. Net income falls to a negative $9236.16. The bottom line changes significantly if all CSA labor is paid a wage.

Table 4. Average Imputed Income and Cost for Northeast CSA Operations - 1996.

	Averages	
Income and Cost	$ / Farm	$ / Share
CSA Income (Reported)	35,567.65	464.44
Cash Expenses:		
Imputed Wages	26,679.42	348.37
Other Labor Expenses (Fringe Benefits, Contract Labor)	1,571.35	20.52
Other Cash Expenses	16,553.04	216.15
Total Cash Expenses	44,803.81	585.04
Net Income	- 9,236.16	-120.60

Summary and Conclusions

All CSA operations produce different shares, have different conditions under which they produce their shares and may also have different goals under which the CSA operation functions. One objective of our research is to gather information on the costs associated with CSA production and provide that to the agricultural community, especially those currently operating a CSA and those considering the option. By doing so, we can provide information on costs of production, help improve share-pricing decisions and help improve the viability of CSA operations in the Northeast. An important part of the viability of CSA in the Northeast, is to ensure that all CSA operators earn a reasonable wage.

Perhaps the best way to summarize our preliminary findings is to consider the issue from the standpoint of share prices and costs per share. Determining share price is a key decision made each year by CSA operations. Based on income reported by the 26 CSA operations that complete our survey, about $464 was charged for the average share in 1996, which included about 403 pounds of produce. We found that CSA operators seemed to do fairly well in balancing their explicit costs and share prices. A net income of about $16 was observed per share when considering only explicit costs. However, the true economic costs of producing the average share includes about $369 in labor costs and about $216 in other cash expenses. Thus, the average share costs about $585 to produce when all costs are considered, including fair wages for all labor. An important factor in the underestimation of CSA costs is that operators often neglect to include their wages in the CSA share price. Based on our findings, the average CSA share price should be increased by about $120. The increase in price would primarily be used to pay operator wages.

To propose that CSA share prices be raised by $120 should cause a good deal of concern. It is not likely that such a price increase would go unnoticed by shareholders. Is there room for such an increase, or would that magnitude of increase simply price the CSA out of the market? In other research, retail values were computed for CSA shares based on retail prices.[2] In that research (Cooley and Lass) we found that the retail values of a $450 CSA share could be as high as $1,000. Even when compared to conventional produce, the values were about $700.

In conclusion, it is apparent that many CSA operators do not include their own wage or salary in computing their share price. It is unlikely that many CSA operations can exist very long by not paying the operator a fair wage. While CSA operators may feel nervous about including their salary in the budget, estimates of consumer monetary benefits alone suggest it is possible to cover all costs of production and continue to provide shareholders a great value.

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[2] Cooley, Jack and Daniel Lass. *What's Your Share Worth? Some Comparisons of CSA Share Cost versus Retail Produce Value.* In: 1997 CSA Farm Network. Northeast Organic Farming Association, 1997 (forthcoming).