



Collaborative Community-supported Agriculture: Balancing Community Capitals for Producers and Consumers

CORNELIA BUTLER FLORA AND CORENE BREGENDAHL

[Paper first received, 31 August 2012; in final form, 13 November 2012]

Abstract. Sustainability for local food producers requires a balance of supply (from producers) with demand (from consumers) in the face of volatile weather and prices. Community-supported agriculture (CSA) attempts to achieve that balance through communication and commitments between producers and consumers, which depend on relationships and trust. These relationships and the trust they can generate are multidimensional and complex. We use the community capitals framework, looking at expectations and benefits in terms of natural, cultural, human, social, political, financial and built stocks and flows of assets, as the analytical tool to examine the expectations and realizations of past and current producers and consumers in collaborative CSAs (cCSAs), a particular kind of CSAs that require more relationships than single farmer CSAs. Producers and consumers who receive multiple 'goods' from the cCSAs are more likely to continue their associations. cCSAs can be organized in a variety of ways that develop more than economic benefits for producers and consumers, including social capital, cultural capital, human capital, and political capital, as well as providing a wider range and stability of foods. Surveying producers and consumers – past and present – from three of the four cCSAs in the US state of Iowa, which is dominated by industrial agriculture, we found that those who participated based on satisfying multiple capitals were more likely to maintain participation over time and were more satisfied with the experience. Producers and consumers, who defined the cCSA experience as social and political, as well as economic, were more likely to maintain and expand their participation. Producers that started out in collaborative CSAs and defined their activities based on multiple capitals often used the experience as a business incubator to begin individual CSAs and to expand the variety of food produced. cCSA structures that evolve to maximize multiple capitals for individual producers and consumers proved most sustainable and demonstrate the interactive nature of successful structures for on-going farmer–consumer relationships.

Cornelia Butler Flora is the Charles F. Curtiss Distinguished Professor of Sociology and Life Sciences at the Department of Sociology, Iowa State University, Ames, IA 50011-1050, USA; email: <cflora@iastate.edu>. Corry Bregendahl is an Assistant Scientist at the Leopold Center for Sustainable Agriculture, Iowa State University, Ames, IA, USA.

Introduction

Community-supported agriculture (CSA) is an increasingly popular short value chain that links local food to local eaters. As agriculture becomes more consolidated and less diversified, consumer concerns about its multiple negative impacts increase. Alternative food networks (AFN) address those concerns through new, short food supply chains for diverse fruits, vegetables and proteins. CSA is such a supply chain. CSAs were originally organized as consumer investment opportunities, whereby members have a contract with the producer(s) to pay a predetermined fee and receive a portion of the harvest. The upfront provision of operating costs is an investment by the consumer in the enterprise and is an agreement to share the risks as well as the benefits of farming food for the local market. However, the organizational structures are flexible, as producers and consumers seek to maximize the multiple benefits of CSAs (Galt et al., 2011) and there is no single organizational model.

Alternative food networks attempt to create holistic, multidimensional relationships among producers and consumers. The community capitals framework (CCF) provides a holistic framework for assessing the multiple dimensions of these networks (Flora et al., 2004; Flora and Flora, 2013). Figure 1 shows the seven capitals, which all intersect and influence each other, and influence the outcome of sustainability: economic security, ecosystem health, and social inclusion. The framework is useful to determine the benefits expected and received by both consumers and producers.

Collaborative CSAs (cCSAs) are created when two or more producers work together to serve a common set of customers. They can be organized by groups of producers, consumers, or by both working together to set up, coordinate and administer provisioning, distribution, recruitment and payments. cCSAs generally have a board of directors and staff to carry out the complex functions of getting the products from the farmers to the consumers in the most direct manner possible. Administrators of cCSAs recruit more growers when needed and handle communication with consumers.

By allocating and sharing the responsibility of production and delivery, multiple producers can specialize, diversify, and collectively have the redundancy within the organization to supply their consumers with a diverse offering on a regular basis during the season. Perry and Franzblau (2010) state the advantages for producers in cCSAs include the upfront payment, guaranteed markets, direct link to consumers, control over pricing, specialized crop production, convenience, low risk for participation for new or small growers, community building among growers, and a safety net. For consumers they argue that cCSAs offer benefits such as healthy food, safe food, competitive pricing, buying local, reconnecting to the land, decreased risk for members, and convenience. The major difference in benefit for members over a single CSA appears to be decreased risk.

We show how a quantitative study of producers and consumers in cCSAs influenced the evolution of a modified cCSA organization attempting to maximize multiple capital benefits for both consumers and producers in order to enhance the benefits for each group.

CSA resists the dominant socio-technical regime and embeds agriculture in the local (Cone and Myhre, 2000; Carolan, 2011). It strives to establish economically viable, ecologically sound and socially just relationships in the process of food production. The vision is to create a system of agriculture that: supports local and regional food production and consumption; promotes land stewardship (natural capital); builds

community (social capital); educates consumers about food systems and the food they eat (cultural capital); shares risk between consumers and growers (financial capital); and adds value to grower knowledge (human capital), labour and products. By becoming shareholders, consumers are expected to change their relationships with farmers, with the land, and with their communities. CSAs are expected to change the characteristics of agricultural products, the production and consumption of which requires support from new relationships, new technologies, new value chains, and new policies. CSA is an example of system transition initiated by innovative actors through change at the local level.

Literature Review

CSAs have grown in number and number of members per CSA in the US since introduced from Europe in the mid-1980s (DeMuth, 1993; Woods et al., 2009). State and civil society actors have invested in supporting CSAs through help with start-up funding, networking opportunities, research and an array of Cooperative Extension publications that share ideas on how to build a CSA, including multi-farm or cCSAs (Perry and Franzblau, 2010). The CSA database at the Robyn Van En Center at Wilson College in 2012 contained a national database that now includes more than 1,650 CSA farms compared to 902 in 2002. CSAs began in Iowa in 1995 and expanded quickly (Wells and Gradwell, 2001; Tegtmeier and Duffy, 2005). In 2004, there were at least 38 CSA operations in Iowa, according to the Robyn Van En Center for CSA Resources, as reported in Tegtmeier and Duffy (2005). Several cCSAs were organized in Iowa in 1997 by groups of producers and groups of consumers.

There is a growing body of literature on CSA in the United States that suggests the strength of that form of alternative food system (AFS) in building sustainable communities. The majority of these studies are either case studies (Farnsworth et al., 1996; DeLind and Ferguson, 1999; Wells and Gradwell, 2001; Tegtmeier and Duffy, 2005; Andreatta et al., 2008; Carolan, 2011; Charles, 2011; Reeve et al., 2011; Chen, 2012; Hayden and Buck, 2012) or regional (Cooley and Lass, 1998; Cone and Myhre, 2000; O'Hara and Stagl, 2001; Perez et al., 2003; Bregendahl and Flora, 2006; Ostrom, 2007; Brehm and Eisenhauer, 2008; Macias, 2008; Woods et al., 2009; Galt et al., 2011) in approach. This study combines a regional and case-study approach, demonstrating how systematic statewide research is used to restructure a single cCSA. Such research recognizes the contextual and relational nature of CSAs and the process of the evolution of context-appropriate structures. These studies also show their limitations (Perry and Franzblau, 2010, p. 24).

There were two nationwide surveys of CSAs conducted in 1999 (Lass et al., 2003a) and 2001 (Lass et al., 2003b). Schnell (2007) used the 1997 Census of Agriculture conducted by the National Agricultural Statistical Service to analyse the distribution of CSAs at that time. He found them to be in rapidly growing, heavily urbanized or suburbanized areas and in areas with more, but smaller farms and not in areas with a high poverty rate.

While CSAs are concentrated in New England and the megalopolis region of the Northeast, the upper Midwest, particularly Minnesota, Wisconsin and Iowa, and the West Coast have substantial numbers of CSAs as well. Of those states, Iowa has the largest concentration of industrial agriculture and the largest farms. Iowa is the number one producer of corn for grain, as well as the number one producer of animal products that utilize corn: hogs and eggs. Iowa has the largest ethanol facilities

capacity in the US, nearly twice that of Nebraska, which ranks second (Nebraska Energy Office, 2012). In response to this demand for industrial inputs, corn prices have risen in the last decade and so have the acres planted with corn. Federal policy covers any risk in corn production through subsidized crop insurance, as well as guarantees profit through a series of direct payments and loan guarantees. Moreover, if a farmer grows vegetables for market on any land that has been part of the farm's base corn acres, that farm loses access to those subsidies and supports. The price of land exceeds by far its ability to cover land cost, even over a period of 20 years. To grow vegetables for local sale is thus not tempting for large-scale farmers, but it does provide a mechanism for small farmers to enter a new market with new products, although access to land is problematic.

Community Capitals Framework

AFNs have multiple goals in terms of the contributions to the individuals involved and to the community in which they are located. In focus groups with consumers in four counties in Washington State, Selfa et al. (2008) found that consumers looked for a balance of attributes, not all with precise definitions, from their CSAs and other AFN sources (2008, pp. 271–272). The Community capitals framework has proven useful for holistic analysis leading to action to improve communities and organizations (Emery and Flora, 2006; Fey et al., 2006; Flora et al., 2007, 2009; Flora, 2011; Rasmussen et al., 2011; Flora and Flora, 2013). Inquiry about each capital (which must be specified for the context) forces a 360 degree examination of potential assets that can improve long-term resiliency of the organization or community.

Place matters. Each place offers unique conditions of soil, hydrology, precipitation and temperatures (*natural capital*). For producers and for consumers, natural capital in the quality and freshness of the produce and care of the environment were important reasons for participation in AFNs (Cooley and Lass, 1998; O'Hara and Stagl, 2001; Bougherara et al., 2009).

Place also provides ways of seeing and doing that link the seen with the unseen and limit what is thought possible to change (*cultural capital*). Place-based food reinforces localism. Winter (2003) suggests the preference for local over organic is part of a defensive localism, particularly in non-urban setting, such as most of Iowa. Lang (1999, p. 218) makes a similar point: 'food is both, a symptom and a symbol of how we organize ourselves and our societies. It is both, a vignette and a microcosm of wider social realities'. Hayden and Buck (2012), using ethnographic methodology, look at the degree to which CSAs create tactile space, as discussed by Carolan (2007, 2011) and contribute to environmental ethics.

CSAs can make a contribution to *human capital* through enhancing health and knowledge, both formal and tacit (Carolan, 2011). The contribution of CSAs to human health is found by several studies as a motivator for consumer (O'Hara and Stagl, 2001).

A large selling point of CSA is increasing *social capital*, both bridging (within the group) and bonding (to others that are from different groups). Indeed, literature suggests that it is this capital that attracts and keeps members in CSAs. For example, Selfa et al. (2008) found organic was less important to consumers than local and relationships. O'Hara and Stagl (2001) found consumers have a high preference for personal interaction when buying food products. Ostrom (2007) found that CSAs returned a sense of agency to local communities.

CSAs can generate *political capital*, which is based on the norms and values of the organizations and which become standards, enforced by rules and regulations. 'A key concept of early CSA organizers was to assert local control over a food system that was growing increasingly consolidated and remote' (Adam, 2006, p. 3). Lang (1999) argues that CSAs contribute to the concept of food democracy (or food citizenship), recognizing that consumers can identify the interests of others (food workers, other consumers, future generations, and other species). CSA consumers generally view themselves as more politically active and progressive than others (O'Hara and Stagl, 2001), validating on an individual level what Schnell (2007) concluded using an ecological analysis. Hinrichs (2000) found CSA re-embeds market relationships within civil society.

For producers, the CSA generates *financial capital* in terms of the money that members invest prior to planting, while members count on savings on fresh fruits and vegetables. Case studies of farms participating in CSAs show that this provides an important segment of farm income and leads to other farm enterprise opportunities (Reeve et al., 2011). Many farmers who engage in alternative networks such as farmers markets (FMs) and CSA find these activities insufficient to sustain their incomes; hence, they rely on external systems to retain their viability, e.g. by drawing on state support or cross-subsidy from other (mainstream) activities. Even where positive multiplier effects can be identified, evidence suggests that launches of AFNs in a region may incur detrimental impacts on other economic activities. Thus, although Brown and Miller (2008) conclude positively about the overall net gains of FMs to local economies, they report losses to several businesses sectors, as a result of consumer expenditure dropping in local grocery stores (Tregear, 2011). Data from a 1999 nationwide CSA survey (Lass et al., 2003a) and a 2001 nationwide CSA survey (Lass et al., 2003b) show that CSA farms surveyed are faced with challenging financial situations. But these farmers felt the CSA operation still helped improving their financial situation. A majority of the farmers surveyed felt the CSA improved their ability to meet farm costs, increasing their own compensation.

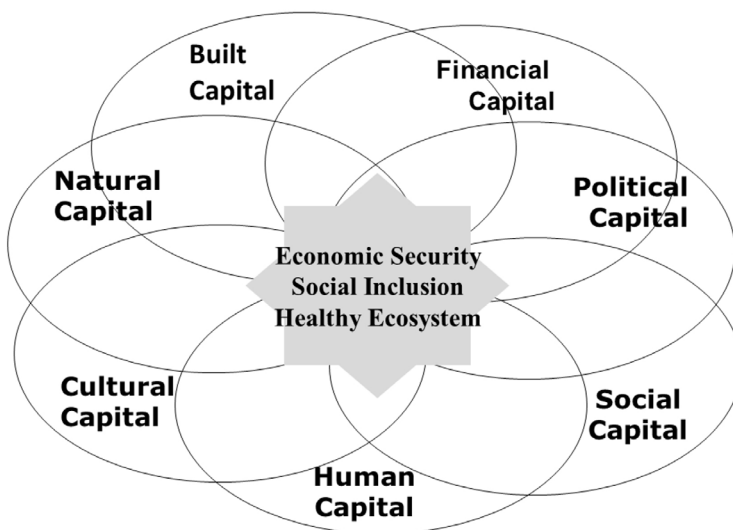


Figure 1. Community capitals framework.

A lack of financial capital limits participation of low-income consumers. Macias (2008), in a study of different types of AFNs in Vermont, found that the CSA initiative failed to attract economically disadvantaged participants until specific actions were put in place to reach them. In her account of community food movements in New York, Slocum (2006) critiques the internal relationships she observes, arguing that these movements perpetuated rather than overturned historically iniquitous social inequalities. A number of efforts have been launched to utilize cCSAs for poverty reduction, particularly through linkage with inner-city churches, schools, and childcare centers (Andreatt et al., 2008), including one led by Rainbow Organic Farms in Kansas City Kansas and Missouri. Woods et al. (2009) found that over 40% of CSAs surveyed donate excess product to a food bank. Grown Locally, a community farming cooperative in north east Iowa that offers a CSA option, developed collective GAP certification that allows them to market food to schools in the area, particularly those serving low-income students.

CSAs utilize and create *built capital* in terms of storage and packing sheds, small irrigation systems, pick-up places (that transform churches, community centres and parking lots for the times of delivery) and may influence the kinds of cooking and storage equipment members purchase to best utilize abundant harvests. These capitals overlap in their manifestations. As they are a non-linear system, a change in one capital occasions changes in others. Relationships are not static, but processes. Civic agriculture is a dynamic, evolving experiment in food democracy. Thus the CCF is a useful tool for comparative AFN studies (Campbell et al., 2012).

Methodology

This study was designed in 2004 collaboratively by the North Central Regional Center for Rural Development, the Iowa Network for Community Agriculture, and the Leopold Center for Sustainable Agriculture to learn how cCSAs could become even more successful, particularly by decreasing turnover in members and producers (Bregendahl and Flora, 2006). We contacted the four cCSAs in Iowa at the time, and three agreed to share their lists of current and past members and current and past producers with us.

Three of Iowa's four cCSAs participated in the study. In 2005 each participating cCSA served urban or peri-urban college towns and surrounding areas. Two of the three were started and administered by producers. One was started and administered by consumers. We received 26 usable producer surveys, which represent an overall producer response rate of 70% and 189 usable member surveys, representing an overall member response rate of 46%.

As the organizations were very interested in increasing their stability, we surveyed current and past producers and citizen/investors. We defined a producer as anyone who provided products to the cCSA, even value added products. Thus, participation was not limited to only those who were cultivating crops or raising livestock. Of the 26 who responded, 11.5% were not actually farming but rather were entrepreneurs adding value to locally grown products (e.g. bakers).

Nearly two in three (61.5%) of the responding producers are currently participating in a cCSA. The average length of time producers cooperated with other producers to provide products to members of the cCSA was four years. Producers furnished vegetables and fruit, flowers, dairy products, bread, cakes, grains, poultry, fish, pork, lamb and eggs.

Using a five-point Likert scale, we asked producers and ex-producers on the extent to which they agreed that participating as a producer in cCSA helped them experience 52 specific benefit items. We asked members and ex-members the extent to which they experienced 49 benefit items during the last growing season they were a member. A follow-up interview was conducted by telephone with a representative from Farm to Folk, one of the cCSA study farms, in 2012.

cCSAs and Community Capitals

Producer Expectations

In their study of CSA operators, Tegtmeier and Duffy (2005) asked respondents why they had decided to start their CSA operation. The top six reasons offered had to do with increased social capital (closer relationships with consumers and stronger ties to community) and financial capital (assured markets and income, guaranteed prices, and sources of capital). Farmers in the study were also asked to assess categories of values that encouraged them to participate in alternative agricultural pursuits. The authors concluded that,

‘the social and environmental aspects of CSA are stronger motivating factors than the possible market advantages of the model. Although assured markets and guaranteed prices do appear to be fairly strong motivating factors, these farmers do not seem to be drawn to CSA by an assured income or to make a living’ (Tegtmeier and Duffy, 2005, p. 10).

While it is somewhat discouraging for producers trying to make a living solely from CSA, we found that each producer has a range of motivations that compel them to participate. When we asked producers an open-ended question on why they chose to participate in collaborative CSA, most of the reasons they provided (they could list multiple ones) had to do with financial advantages.

- Financial capital: 76% cited financial reasons for joining, including income they received from product sales, access to markets, and shared risk and responsibility with other producers.
- Social capital: 40% of producers cited social reasons for joining, including the importance of developing relationships with growers and consumers.
- Cultural capital: 24% referenced cultural reasons for joining. In this regard, producers said their involvement allowed them to live out their philosophical values, beliefs, commitments and convictions.
- Human capital: 24% said they joined to increase human capital – both their own and others’. In terms of their own, some producers joined to learn from other producers and to reduce their management and production responsibilities. Producers also joined to increase the human capital of others by improving human health, mainly through the production and provision of healthy food.
- Natural capital: 12% joined for environmental reasons to reduce use of chemical or food miles to ship products to market.
- Political capital: interestingly, none of the producers identified overt political reasons for joining.

In cCSAs, financial expectations are closely linked with social ties that are perceived to translate into economic gains for the business. However, producers cited few en-

vironmental reasons for joining. Something else noticeably absent was articulation of explicit political motivations for joining in terms of gaining access to elected officials or influencing policy. DeLind and Ferguson (1999) found in their study that members do not join CSAs to further a specific political agenda. Instead, participation provides members an opportunity to express their values in deeply personal, but not necessarily public ways. Like members, it is possible that producers similarly do not view CSA as a political platform, but rather a chance to make a modest living while fulfilling a set of social and cultural values that are inextricably bound to personal politics.

Producer Benefits

Expectations are one thing; the benefits producers receive may be quite another. In this section, we use the community capitals framework to analyse the benefits producers reportedly received as a result of participating in collaborative CSA.

Producer Benefits According to the Community Capitals Framework

The items that we used to examine the financial capital, measure the extent to which producers report they were not only able to increase their assets and financial wealth, but also diversify and stabilize their income. While the capital model (Flora and Flora, 2013) distinguishes built capital from financial capital, we only had two items to measure built capital. Unable to create a separate scale, we felt justified in combining those items with financial capital rather than leaving them out of the analysis.

We created scales by computing means for six community capitals based on our theoretical framework (see Box 1). However, relying on the theoretical framework alone creates some challenges, since several measures could fit into more than one category. Therefore, we subjected our scales to tests of reliability to determine whether they legitimately 'belonged' together as a single concept. All were found reliable using Cronbach's alpha.

According to descriptive statistics (using means), producers reported the greatest benefits in natural capital, followed by social, cultural, human, political and financial/built capital. In a separate analysis of built capital, 11.5% of reporting producers said participation enabled them to acquire farm equipment such as tractors, tillers, tools, irrigation equipment, etc.

Producers reaped the greatest benefits in terms of contributing to environmental health, developing social relationships, and sharing cultural values. Human capital, political capital, and financial capital benefits were experienced to a lesser degree.

Individual versus Collective Benefits

Producers reported receiving benefits as individuals and for the community. We divided benefits into two categories and created two scales: self-oriented benefits (e.g. learning farming techniques, diversifying farm income, making connections with other producers, etc.) and others-oriented benefits (e.g. sharing information, helping others connect to the land, increasing biodiversity, etc.). We included 26 items for the self-oriented benefit scale (alpha = .8987) and 22 items for the others-oriented benefit scale (alpha = .9563).

A comparison of means showed a statistically significant difference ($p < .05$) in the individual versus collective benefits that producers report from participating in cCSAs. Producers are more likely to agree they experience collective benefits com-

pared individual benefits. Ideally, alternative food systems should reward the individual as much as the collective to ensure that producers have adequate incentives to participate or at the very least, food systems that redistribute the risk accordingly. If the collective benefits are greater than individual producer benefits, then the collective should at the very minimum be taking on a proportionate share of the risk. Food systems that are ultimately unsustainable are characterized by arrangements in which producers experience a modest share of benefits but take on the greatest share of the risk – the hallmark of modern, industrialized agriculture (Heffernan, 2000).

Producer Expectations, Benefits and Decision-making

Comparing the actual benefits that producers report receiving (based on quantitative analysis) with their expectations for benefits (based on qualitative analysis) reveals some notable contradictions that might explain why some producers choose to withdraw from collaborative CSAs. Although 76% of producers were motivated to join cCSAs for financial reasons (among others), financial benefits ranked last among benefits received. On the other hand, while few producers report they were motivated to join for environmental reasons, they reported significant benefits to the environment.

Not all of the data were contradictory, however. Producers report social, cultural, and human capital benefits equivalent to their expectations. In terms of political capital, no producers overtly acknowledged political motivations for joining nor did they report political capital benefits. This finding raises several questions. Were the items we used adequate for measuring political capital? *If so*, who are producer advocates? Who links them with local food system advocacy coalitions, government officials, and policymakers? Producers themselves may not be in a position to invest into the political aspects of local food systems work, because they have more pressing struggles meeting production, marketing, and management responsibilities.

The discrepancy between financial expectations and the financial benefits received might explain why cCSAs in Iowa have experienced some turnover in producers. Nearly two in five (38.5%) of producers responding to the study are no longer participating in cCSAs. Of those who are no longer involved, half cited financial reasons, such as 'the money was not worth it' and 'it was not economically feasible'. Other reasons included health problems (human capital), lack of communication (social capital), coordination time required (human capital/financial capital regarding opportunity costs), and moving from the area.

Participation in cCSAs proved to be a learning experience for most producers. It provided lessons in the economics of farming, marketing, cooperation and control. While one producer chose to leave local food system production, most stayed on although not necessarily with the collaborative model. Several started their own individual CSAs. In terms of community development, this is beneficial as new businesses are spawned from the collaborative CSA effort.

Consumer/Investors

Cone and Myhre (2000) documented why people join CSA. Building on their work, our goal was 1. to identify the benefits members receive as a result of joining, and 2. to determine the relationship between the benefits members experience and their behaviours in patronizing collaborative CSA and single proprietor-owned CSA.

Box 1. Capital scale items, producers.

Participating as a producer in collaborative CSA helped you...

Financial/Built

Buy land or a farmstead. Acquire other farm assets. Access new markets.

Gain new consumers for your non-CSA farm products.

Increase your household income.

Stabilize your household income through pre-season contracts with members. Diversify farm income.

Reduce or share risks associated with farming.

Provide income-generating activities for household children/minors.

Cultural Capital

Live your philosophical, spiritual, or ethical values.

Help CSA members connect with each other or other community members through farm or CSA-hosted events, festivals, potlucks, etc.

Stay connected to the land.

Build a sense of shared identity with other producers.

Maintain a sense of shared identity with members of the community around local or organic foods or farm products.

Help CSA members connect with the land through farm tours, garden tours, work opportunities, etc.

Participate in an important social movement.

Human Capital

Reduce time spent gaining access to markets.

Reduce time spent performing farm duties by increasing access to CSA member or volunteer workers.

Reduce time spent managing farm business aspects like billing, managing accounts, etc.

Reduce time spent communicating with CSA members.

Reduce time spent distributing farm products to CSA members.

Make good use of your agricultural skills.

Put into practice your knowledge of environmentally friendly farming or animal husbandry techniques.

Increase your knowledge of environmentally friendly farming or animal husbandry techniques.

Share your knowledge of environmentally friendly farming or animal husbandry techniques with other producers and groups.

Be a part of educating the community about local food systems and the realities of farming.

Access knowledge of more experienced producers.

Offer local residents access to healthy and nutritious foods.

Social Capital

Make professional connections with other producers. Make personal connections with other producers. Build trust among CSA members.

Establish a broader network of relationships in the community.

Strengthen relationships in the community.

Build relationships with members of different cultural or ethnic groups.

Political Capital

Counteract the effects of industrialized agriculture on a community or regional scale.

Develop or maintain advocacy coalitions that support healthy local or regional communities.

Develop relationships with local government.

Develop relationships with county or regional government.

Develop relationships with state or federal government.

Develop relationships with local food system advocates.

Natural Capital

Increase biodiversity (by growing heirloom varieties, raising heritage animals, or cultivating something other than row crops).

Reduce chemical inputs into the environment.

Reduce food miles to get your farm products to market.

Improve the appearance of the landscape.

Improve soil health.

Improve water quality.

Improve animal welfare.

Improve wildlife habitat.

Member Benefits

Community Capital Member Benefits

For analysis, we created scales (again, by computing means), a process guided by our theoretical framework of the community capitals (Flora et al., 2004). We tested each score for reliability to determine whether they belonged together as a single concept. A total of three items were removed. The items used for each capital are shown in Box 2.

- Financial/built capital measures. We originally included six items in the financial capital scale, which measured two general dimensions: financial benefits that accrue to individual households (such as saving money on produce) and financial benefits that accrue to the community (see items below). We found that if we included the two items that included individual financial benefits, the reliability coefficient decreased (suggesting the scale was not reliable); therefore, we removed them. What we have is a scale that measures the economic benefits members experience not for themselves, but as members of a community.
- Cultural capital measures. Our measures of cultural capital centre on the way in which members develop a strong sense of identity to the land, farming, food, and a set of specific values.
- Human capital measures. We used 14 items to measure human capital benefits, which centred on two dimensions of human capital: that of health and learning.
- Social capital measures. The social capital scale was created from items measuring the extent to which members report they are connected with producers, other CSA members, and the community.
- Political capital measures. The scale for political capital addresses the extent to which members agreed that they participated in 'small' agriculture as a form of protest against 'big' agriculture and the extent to which they formed politically strategic social connections with players who can potentially influence food, agricultural, and community development policies.
- Natural capital measures. Due to the small scale of participating CSA operations and the objectives of this study, we did not link CSA production practices with concrete, measurable impacts on the environment but instead focused on members' awareness about the impact their food decisions have on the environment. For this, we gathered information about the impact member participation has on natural capital.

Ranking Community Capital Benefits

Once the scales for each community capital were constructed, we compared the means to determine whether there were statistical differences in the types of benefits members report receiving from participating in collaborative CSA. Descriptive statistics show members ranked financial/built capital benefits the highest (the lower the score, the greater the benefit), followed by natural, human, social, cultural and political capital. Inferential statistics comparing these means corroborate these results and show they are indeed different. Thus, there are six different layers of benefits for members listed in order from most to least:

1. financial/built;
2. natural;

Box 2. Capital scale items, members.

Participating as a member in a collaborative CSA provided these benefits

Financial

- I helped support the local economy.
- I helped create or save local jobs.
- I helped support local farmers.
- I helped support small farmers.

Cultural

- I supported local agriculture.
- I supported the farming tradition in the area.
- I lived my philosophical, spiritual, and ethical values.
- I developed a personal connection to the food I eat.
- I developed a personal connection to the place I live.
- I accessed specialty or ethnic produce.
- I accessed heirloom varieties or heritage species.
- I took part in farm-based festivals, tours, or events.
- I developed a connection to the land.
- I participated in an important social movement.

Human

- I had access to healthy and nutritious foods.
- I had access to a source of safe food.
- I had access to organically grown or raised farm products.
- I had access to food that is not genetically modified.
- I had access to fresh, tasty food.
- I shared my food preparation knowledge with other CSA members.
- I learned more about who is growing my food.
- I learned more about where my food is grown.
- I learned more about how my food is grown.
- I learned more about local foods and farming.
- I learned more about the realities of agriculture.
- I learned about food storage or preparation techniques from other CSA members.
- I learned about food storage or preparation techniques from producers.
- I learned more about some of the issues associated with environmentally friendly farming or animal production methods.

Social

- I shared my connection to the land with others.
- I joined others to support alternative agriculture.
- I connected with local producers.
- I helped build community around local food.
- I felt part of the community.

Political

- I helped support alternative forms of agriculture.
- I helped counteract industrialized agriculture on a community or regional scale.
- I developed relationships with local food system advocates.
- I helped develop or maintain advocacy coalitions that support healthy communities.
- I developed relationships with government or policy makers.

Natural

- I helped reduce food miles.
- I supported agriculture that reduces chemical inputs.
- I supported agriculture that improves water quality.
- I supported agriculture that creates healthy soil.
- I supported agriculture that improves animal welfare.
- I supported agriculture that increases biodiversity.
- I supported agriculture that improves wildlife habitat.
- I supported agriculture that improves landscape appearance.

3. human;
4. social;
5. cultural;
6. political.

As expected, natural capital ranked near the top. However, much to our surprise, financial capital topped natural capital by ranking first. The measures we included relate to financial benefits for the community, not for themselves as individuals. Political capital appeared at the bottom. A probable explanation for this is that members do not explicitly link their consumption patterns to specific political outcomes, which is underpinned by results DeLind and Ferguson (1999) found among CSA members they studied.

Individual versus Collective Benefits

The issue of individual versus collective benefits that emerged from the analysis of producers prompted us to revisit this issue for members. Are members of cCSA also reaping different individual and collective benefits?

Two scales for benefits were 1. individual or self-oriented, and 2. collective or others-oriented. A total of 21 items were included in the scale measuring collective benefits (the reliability coefficient was .9249) and 27 items were included in the scale measuring individual benefits (reliability coefficient was .9113). When we compared the means for these two scales, we found that overall, cCSA members were more likely to report collective benefits of cCSA participation versus individual benefits ($p = .000$).

Member Retention

The coordinators of the three cCSAs reported retention rates of 80%, 69% and 59%. To put this into perspective, according to Docter and Hildebrand (1998) it is not unusual for many CSAs to have a high turnover rate and lose between 25% and 70% of their members each season. For starting CSAs, a retention rate of 50% is typical while a successful CSA should aim for a retention rate between 75% and 80% by the time it enters its fifth or sixth season.

Nearly half (45.5%) of member respondents participate no longer in cCSAs. The top reasons for attrition have to do with coordination issues (members could indicate more than one reason): Coordinating member's summer schedules with weekly deliveries, coordinating the appropriate amount of produce distributed to members throughout the season, and the more convenient role farmers' markets. Nearly one in three (31%) cited cost as a factor. Poor food quality, lack of food preparation knowledge, and lack of social connection were cited less frequently as reasons for attrition.

Types and breadth of community capital benefits were the best predictors of length of participation. Current members are more likely to agree that they derive collective or community oriented financial benefits from participating ($p = .027$) than former members. Current members are also more likely to report that they experience social ($p = .001$), human ($p = .002$), and cultural ($p = .026$) benefits than former members. However, current and former members do not differ in terms of the natural and political benefits they derive from participating. We found that members

who experienced greater levels of social capital benefits were more likely to stay (chi-square = 12.174; $p < .05$).

Using logistic regression to predict likelihood to stay, we found that *diversity* of member capital benefits is statistically important in predicting retention (chi-square = 8.526; $p < .05$). As benefits in the number of community capital categories increases by one, members are 1.5 times more likely to stay. In summary, the more diverse the benefits are for members, the more likely they will continue participating in cCSAs. For example, a member who reports benefits in cultural capital (e.g. by living ethical, spiritual and philosophical values), financial capital (e.g. helping support the local economy) and human capital (e.g. accessing a source of healthy and nutritious food) is more likely to stay than someone who reports benefits in only one type of capital.

Current members experienced both more individual benefits and more collective benefits than did former members. Thus, it appears that retention weighs heavily on both individual and collectively oriented benefits.

Applying the Knowledge Generated

By the end of the 2005 growing season, one of the cCSAs participating in this study had dissolved. There were several reasons for this, the most culpable of which was tension among producers and an inability to resolve differences, in part because producers were differentially invested and the organization lacked strong, clear leadership.

Producers were reluctant to invest their time in what appeared to be a sinking ship. With no primary producers willing or able to invest the time in rebuilding failing relationships, coordinators became the champions for a new organization backed by significant member interest when the old one fell apart. To overcome some of the producer tensions and accountability issues, the new structure was designed to allow producers to make decisions about their own operations, but not the new organization. In consultation with interested local growers, coordinators reorganized the CSA as a hybrid CSA-buying club model, where members can choose from several CSA shares, each produced by a separate producer, or they can choose to buy specific items if demand warrants delivery. Rather than simply managing logistics, the coordinators are using the social capital they developed within the old structures to act as 'relationship investors' who are on the ground every week talking with members. The coordinators are representing producers. As a result, the new organization is not a direct market in the strictest sense except that members do have access to producers during delivery and at other times, should they so choose. This arrangement succeeded because coordinators effectively meet the communication needs of both producers and members in a way helpful and beneficial to both groups. The coordinators have designed the fee structure to sustain their role to originate from producer fees, through a percentage of most produce sold, and flat consumer fees to use the service. Two part-time seasonal positions were created in the process.

The Magic Beanstalk cCSA utilized the knowledge generated to address member attrition and increase the economic diversity of participants. Over the winter of 2005–2006, the Magic Bean Stalk coordinators worked together to revamp Magic Beanstalk to make it more flexible for the consumer members and to offer better marketing of the locally produced food and fiber produce. As a successor Farm to Folk was launched in 2006. By 2012, it operated year round with 16 different farms

participating in subscription and à la carte provisioning. Total sales in the 2011 calendar year were \$122,042, with \$107,397 going to farmers. Almost all the participating farmers have developed additional alternative short marketing chains, from selling through local stores, farmers markets, and local restaurants. Other CSA farmers in the state also sell as a cooperative to school districts. In 2011 and 2012 there were 274 active members, including those purchasing CSA shares and those with à la carte accounts. Many were new, as there is still turn over, but not as high as in the predecessor cCSA. There are many more options now for CSA shares and other local foods, and many of the spin-off CSAs were once affiliated with Farm to Folk.

Another way producers are innovatively supporting inclusivity is by combining structures that cater for different kinds of food needs. They hybrid CSA-buying club structure that emerged from the collapse of one of the cCSAs makes it possible for a variety of people to participate. In addition to CSA shares, single items can be ordered from a list posted online every week, functioning somewhat like an electronic farmers' market. In this way, members can regulate what and how much they receive. If the enrolment for 2006 is any indication, this hybrid structure seems to appeal to all kinds of eaters – those who want to experience the surprise and adventure of CSA membership and those who want more control over what and how much local food their household receives. Coordinators and producers hope this system will be more inclusive of families who want to support local food systems but, for various reasons, do not find participation in CSA viable.

In their promotion, Farm to Folk stresses their commitment to providing our producers with fair compensation for their labour. A 10% fee on sales from the farms remunerates the coordinator. With so many university people in the area, the coordinator calculates that asking for an upfront payment, that members can use up as their schedules allow, will be more viable (Henderson and Van En, 2007).

Conclusions

The cCSA is one way to shorten value chains in AFNs. They require a great deal of coordination, transparency and communication to ensure that they maximize the capitals generated for producers and consumers. As suggested by past studies of CSAs, both producers and consumers sought and gained multiple benefits from participation. The greater the number of capitals gained from participation, the greater the retention of producers and consumers. The revised cCSA with its à la carte options helped to respond to one of the complaints to CSA defectors: too much of an unwanted product and not enough of another or not enough variety offered. And it did so while building the capitals the literature has shown to be particularly important for CSA members: social capital through a common pick-up point, regular newsletters, and CSA events for sharing; cultural capital through sharing recipes for unfamiliar produce; human capital through increased knowledge about the growing process and better health by eating more fresh fruits and vegetables. The impact on natural capital was effected through the short distance from the producer to consumer and the more sustainable practices used.

We found a surprising commitment to the collective capitals produced by participation in cCSAs by both producers and consumers. The recognition of contributing to the greater good in terms of creating a healthy ecosystem, social inclusion and economic security increased perseverance for members as well as producers.

Producers who participate and remain participating find a balance of social, cultural and natural capitals, despite perceived low levels of financial and built capital. Consumer/investors who remain as members also find multiple capital benefits from their participation. In contrast to producers, consumers who remained longer with the cCSAs defined political capital as a major product generated through their membership. cCSAs that involve consumers as well as producers in their governance are able to achieve 'new forms of political association and market governance' (Whatmore et al., 2003, p. 389). By making participation more flexible and by offering subsidized memberships, cCSAs such as Farm to Folk are attempting to address the equity issues surrounding the initial upfront payment and to adapt to the shifting schedules of their consumers.

Collaborative CSAs are dynamic organizations with flexible boundaries and dynamic relationships that form and reform over time, as shown by Galt et al. (2011). Through a systematic, participatory research methodology, Farm to Folk was able to better direct re-articulations between producers and consumer/investors through food.

References

- ADAM, K.L. (2006) *Community Supported Agriculture*. Fayetteville, AR: ATTRA-National Sustainable Agriculture Information Service. Published online <<http://www.attra.org/atrapub/PDF/csa.pdf>>, accessed 23 October 2012.
- ANDREATTA, S., RHYNE, M. and DERY, N. (2008) Lessons learned from advocating CSAs for low-income and food insecure households, *Southern Rural Sociology*, 23, pp. 116–148.
- BOUGHERARA, D., GROLLEAU, G. and MZOUGH, N. (2009) Buy local, pollute less: what drives households to join a community supported farm?, *Ecological Economics*, 68, pp. 1488–1495.
- BREGENDAHL, C. and FLORA, C.B. (2006) *The Role of Collaborative Community Supported Agriculture: Lessons from Iowa*. Ames, IA: Leopold Center for Sustainable Agriculture. Published online <<http://www.soc.iastate.edu/extension/ncrcrd/CSARreport-2006-LessonsFromIowa.pdf>>, accessed 23 October 2012.
- BREHM, J.M. and EISENHAUER, B.W. (2008) Motivations for participating in community-supported agriculture and their relationship with community attachment and social capital, *Southern Rural Sociology*, 23, pp. 84–115.
- BROWN, C. and MILLER, S. (2008) The impacts of local markets: A review of research on farmers markets and community supported agriculture (CSA), *American Journal of Agricultural Economics*, 90, pp. 1296–1302.
- CAMPBELL, D., CARLISIE-CUMINA, I. and FEENSTRA, G. (2012) *Community Food Systems: Strengthening the Research to Practice Continuum*. Presented to the 75th annual meeting of the Rural Sociological Society, Chicago, IL, 26–29 July.
- CAROLAN, M. (2007) Introducing the concept of tactile space: creating lasting social and environmental commitments, *Geoforum*, 38, pp. 1264–1275.
- CAROLAN, M.S. (2011) *Embodied Food Politics*. Burlington, VT: Ashgate.
- CHARLES, L. (2011) Animating community supported agriculture in North East England: striving for a 'caring practice', *Journal of Rural Studies*, 27, pp. 362–371.
- CHEN, S. (2012) Civic agriculture: towards a local food web for sustainable urban development, *APCBEE Procedia*, 1, pp. 169–176.
- CONE, C.A. and MYHRE, A. (2000) Community-supported agriculture: a sustainable alternative to industrial agriculture?, *Human Organization*, 59(2), pp. 187–197.
- COOLEY, J. and LASS, D. (1998) Consumer benefits from community supported agriculture membership, *Review of Agricultural Economics*, 20, pp. 227–237.
- DELIND, L.B. and FERGUSON, A.E. (1999) Is this a women's movement? The relationship of gender to community-supported agriculture in Michigan, *Human Organization*, 58(2), pp. 190–200.
- DEMUTH, S. 1993. *Community Supported Agriculture (CSA): An Annotated Bibliography and Resource Guide*, Agritopics Series AT 93-02 SDA. Washington, DC: National Agricultural Library. Published online <<http://www.nal.usda.gov/afsic/pubs/csa/at93-02.shtml>>, accessed 23 October 2012.
- DOCTER, M. and HILDEBRAND, L. (1998) CSA success depends on retention: here's how to keep members happy, *Growing for Market*, April, pp. 1, 4–6.

- EMERY, M. and FLORA, C. (2006) Spiraling-up: mapping community transformation with the community capitals framework, *Journal of the Community Development Society*, 37, pp. 19–35.
- FARNSWORTH, R.L., THOMPSON, S.R., DRURY, K.A. and WARNER, R.E. (1996) Community supported agriculture: filling a niche market, *Journal of Food Distribution Research*, 27(1), pp. 90–98.
- FEY, S., BREGENDAHL, C. and FLORA, C.B. (2006) The measurement of community capitals through research: a study conducted for the Claude Worthington Benedum Foundation by the North Central Regional Center for Rural Development, *Online Journal of Rural Research and Policy*, 1(1), published online <<http://ojrrp.org/journals/ojrrp/article/view/29>>, accessed 23 October 2012.
- FLORA, C.B. (2011) Mobilizing community capitals to support biodiversity, in: J. LOPEZ PUJOL (ed.) *The Importance of Biological Interactions in the Study of Biodiversity*. New York: InTech, pp. 355–364, published online <<http://www.intechopen.com/articles/show/title/mobilizing-community-capitals-to-support-biodiversity>>, accessed 23 October 2012.
- FLORA, C.B. and FLORA, J.L. (2013) *Rural Communities: Legacy and Change*, 4th edn. Boulder: Westview Press.
- FLORA, C.B., FLORA, J.L. and FEY, S. (2004) *Rural Communities: Legacy and Change*, 2nd edn. Boulder: Westview Press.
- FLORA, C.B., BREGENDAHL, C. and FEY, S. (2007) Mobilizing internal and external resources for rural community development, in: R.D. KNUTSON, S.D. KNUTSON and D.P. ERNSTES (eds) *Perspectives on 21st Century Agriculture: A Tribute to Walter J. Armbruster*. Chicago, IL: The Farm Foundation, pp. 210–220
- FLORA, C.B., LIVINGSTON, M., HONYESTEWA, I. and KOIYAQUAPTEWA, H. (2009) Understanding access and use of traditional food by Hopi women, *Journal of Hunger and Environmental Nutrition*, 4, pp. 158–171
- GALT, R., BECKETT, J., HINER, C. and O'SULLIVAN, L. (2011) *Community Supported Agriculture (CSA) in and around California's Central Valley*. Published online <<http://asi.ucdavis.edu/resources/publications/Galt%20et%20al%202011-CSA%20Report.pdf>>, accessed 23 October 2012.
- HAYDEN, J. and BUCK, D. (2012) Doing community supported agriculture: tactile space, affect and effects of membership, *Geoforum*, 43, pp. 332–341.
- HEFFERNAN, W.D. (2000) Concentration of ownership and control in agriculture, in: F. MAGDOFF, J.B. FOSTER and F. BUTTEL (eds) *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*. New York: Monthly Review Press, pp. 61–75.
- HENDERSON, E. and VAN EN, R. (2007) *Sharing the Harvest: A Citizen's Guide to Community Supported Agriculture*. White River Junction, VT: Chelsea Green Publishing.
- HINRICHS, C.C. (2000) Embeddedness and local food systems: notes on two types of direct agricultural market, *Journal of Rural Studies*, 16, pp. 295–303.
- LANG, T. (1999) Food policy for the 21st century: can it be both radical and reasonable?, in: M. KOC, R. MACRAE, L.J.A. MOUGEOT and J. WELSH (eds) *For Hunger Proof Cities: Sustainable Urban Food Systems*. Ottawa: International Development Research Centre, pp. 216–224.
- LASS, D., STEVENSON, G.W., HENDRICKSON, J. and RUHF, K. (2003a) *CSA across the Nation: Findings from the 1999 CSA Survey*. Madison, WI: Center for Integrated Agricultural Systems, University of Wisconsin.
- LASS, D., BREVIS, A., STEVENSON, G.W., HENDRICKSON, J. and RUHF, K. (2003b) *Community Supported Agriculture entering the 21st Century: Results from the 2001 National Survey*. Amherst, MA: Dept. of Resource Economics, University of Massachusetts.
- MACIAS, T. (2008) Working towards a just, equitable, and local food system: the social impact of community-based agriculture, *Social Science Quarterly*, 89, pp. 1087–1101.
- NEBRASKA ENERGY OFFICE (2012) *Ethanol Facilities' Capacity by State*. Published online <<http://www.neo.ne.gov/statshtml/121.htm>>, accessed 26 August 2012.
- O'HARA, S. and STAGL, S. (2001) Global food markets and their local alternatives: a socio-ecological economic perspective, *Population and Environment*, 22, pp. 533–554.
- OSTROM, M.R. (2007) Community supported agriculture as an agent of change: is it working?, in: C.C. HINRICHS and T.A. LYSON (eds) *Remaking the North American Food System: Strategies for Sustainability*. Lincoln, NE: University of Nebraska Press, pp. 99–120.
- PEREZ, J., ALLEN, P. and BROWN, M. (2003) *Community Supported Agriculture on the Central Coast: The CSA Member Experience*, Research Brief 1. Santa Cruz, CA: Center for Agroecology and Sustainable Food Systems, University of California, Santa Cruz.
- PERRY, J. and FRANZBLAU, S. (2010) *Local Harvest: A Multifarm CSA Handbook*. Published online <<http://www.sare.org/publications/csa/csa.pdf>>, accessed 8 August 2012.
- RASMUSSEN, C., ARMSTRONG, J. and CHAZDON, S. (2011) Bridging Brown County: captivating social capital as a means to community change, *Journal of Leadership Education*, 10(1), published online <http://bigcat.fhsu.edu/jole/issues/JOLE_10_1/Rasmussen%20Armstrong%20&%20Chazdon%202011.pdf>, accessed 23 October 2012.
- REEVE, J.R., CARPENTER-BOGGS, L. and SEHMDORF, H. (2011) Sustainable agriculture: a case study of a small Lopez Island farm, *Agricultural Systems*, 104, pp. 572–579.

- SCHNELL, S. (2007) Food with a farmer's face: community-supported agriculture in the United States, *Geographical Review*, 97(4), pp. 552–564.
- SELFA, T., JUSSAUME, R.A. and WINTER, M. (2008) Envisioning agricultural sustainability from field to plate: comparing producer and consumer attitudes and practices toward 'environmentally friendly' food and farming in Washington State, USA, *Journal of Rural Studies*, 24, pp. 262–276.
- SLOCUM, R. (2006) Anti-racist practice and the work of community food organizations, *Antipode*, 38(2), 327–349.
- TEGTMEIER, E. and DUFFY, M. (2005) *Community Supported Agriculture (CSA) in the Midwest United States: A Regional Characterization*. Ames, IA: Leopold Center for Sustainable Agriculture, Iowa State University.
- TREGGAR, A. (2011) Progressing knowledge in alternative and local food networks: critical reflections and a research agenda, *Journal of Rural Studies*, 27, pp. 419–430.
- WELLS, B.L. and GRADWELL, S. (2001) Gender and resource management: community supported agriculture as a caring practice, *Agriculture and Human Values*, 18, pp. 107–119.
- WHATMORE, S., STASSART, P. and RENTING, H. (2003) What's alternative about alternative food networks?, *Environment and Planning A*, 35, pp. 389–391.
- WINTER, M. (2003) Embeddedness, the new food economy and defensive localism, *Journal of Rural Studies*, 19, pp. 23–32.
- WOODS, T., ERNST, M., ERNST, S. and WRIGHT, N. (2009) *2009 Survey of Community Supported Agriculture Producers*, Agricultural Economics Extension Series 2009-11. Lexington, KY: Department of Agricultural Economics, University of Kentucky.