

Eroding the Community in Community Supported Agriculture (CSA): Competition's Effects in Alternative Food Networks in California

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Abstract

The effects of competition within alternative food networks (AFNs) remain largely unexplored. Using a study of farms that operate Community Supported Agriculture (CSA) programmes in California, the state in the USA with the most CSAs, we empirically examine the effects of competition within alternative food networks. We conducted a statewide survey of CSA farmers in California, which collected data from 111 CSAs. For this analysis we construct a perceived competition index composed of variables that measure farmers' perceptions of competition with numerous market outlets and their being constrained in raising their prices due to competitive pressures. Our analysis shows that perceived competition is negatively correlated with CSA farms' profitability, farmers' satisfaction on a number of fronts, various indicators of the social embeddedness of CSA, and two community food security strategies. We conclude that competition is a real, although differential, phenomenon experienced by many CSA farmers in California, and that this competition impacts CSA in ways that undermine some of its commonly held values, especially fair farmer compensation and strong member-farmer relationships.

Introduction

Alternative food networks (AFNs), in which producers and consumers are directly connected through more local and/or socially embedded supply chains, are often presented as directly opposed to the conventional food system. This means that competition within AFNs remains a little-discussed topic. In Beus and Dunlap's (1990, p. 604) seminal article that contrasts conventional and alternative agriculture,

a key distinguishing feature is ‘competition [for conventional] versus community [for alternative]’, a framing which ignores how competition could influence AFNs.¹ Similarly, Lyson (2004, pp. 63–64) downplays competition when he writes that civic agriculture’s foundation is ‘[c]ommunity problem solving rather than individual competition’.

Following these ideas, many assume that AFNs are immune to the political economic challenges plaguing the conventional, industrialised food system and its participants, which rural sociologists and allied scholars have long studied (Cochrane 1979; Goodman *et al.* 1987; Wells 1996; Walker 2004; Galt 2014). In the conventional food system, oligopsony dominates (Rogers and Sexton 1994; Hendrickson *et al.* 2001; Hendrickson and Heffernan 2007). There are many producers selling a standardised product to few buyers (distributors, processors, and retailers), which pushes prices lower for all producers and disincentivises marketing innovations by individual growers since they do not benefit from a possible increase in price (Rogers and Sexton 1994). Thus, competitive dynamics compel farmers to (1) adopt technological innovations to lower their per-unit costs, (2) expand their acreage – competing to buy or rent land – to spread their fixed costs over a larger area (Cochrane 1979; Bell 2004) and/or (3) move costs into the externality category with no immediate cost to them. In short, ‘farmers are on a treadmill which, in spite of their constant adoption of new technologies, wears away any profits which might result’ (Levins and Cochrane 1996, p. 550). Scholars and proponents of AFNs often assume that they operate outside of these competitive dynamics, and the influence of capitalism’s laws of motion.

When it has been examined, competition vis-à-vis AFNs has been explored in two ways. First is the extensive literature on organic conventionalisation, largely but not exclusively focused on California, with competition theorised as a key driving force (Buck *et al.* 1997; Guthman 2004; Walker 2004; Lockie and Halpin 2005). As Goodman (2000, p. 216) notes, ‘research on California organic agriculture reveals the pervasive inroads of a productionist ethos, with many farmers firmly in the grip of industrial appropriationism ... Widespread dependence on external purchased inputs from specialist suppliers supports organic monocultures, in flat contradiction with agroecological lore, and a cynical regard for the philosophical and ethical foundations of sustainable agriculture’. Second is the work about competition or rivalry between AFNs and the conventional food system – ‘a battle for knowledge, authority and regulation between food chain actors and their consumers’ (Marsden 2004, p. 129). This is rich ground for theorising (Renting *et al.* 2003; Morgan *et al.* 2006; Sonnino and Marsden 2006); Marsden (2004, p. 134), for example, notes that in the case of some AFNs, ‘it is difficult to safeguard the exclusivity of the product, and markets become prone to imitation, substitutions and potential downward pressure on prices’ (see also Goodman 2004). How these processes affect AFNs is an important empirical question.

In this article we are interested in competition as experienced by AFNs that are socially, ecologically, and regionally embedded. Our focus is on Community Supported Agriculture (CSA), which is a direct-to-consumer farm share membership/subscription programme. CSA was originally conceived as a ‘localized food production and consumption system, organized to share farming risks between producers and consumers, practice ecologically sensitive forms of food production,

and contribute to building community and educating the shareholders about agricultural processes and realities through their participation' (Feagan and Henderson 2009, p. 203). In its original conception, CSA farmers could establish prices that covered costs of production and provided a decent living (Henderson and Van En 2007).

The small amount of research on competition vis-à-vis CSAs notes that CSAs are often exceptions to conventionalisation and are practicing a truly alternative form of agriculture (Guthman 2000, 2004; Galt *et al.* 2012). But there are indications that not all is well within CSA, with studies commonly noting inadequate farmer earnings, as well as challenges with member support (Cone and Myhre 2000; Lass *et al.* 2003; Tegtmeier and Duffy 2005; Jarosz 2008; Feagan and Henderson 2009). In examining farmers' earnings in CSA, Galt (2013) argued that while different economic rationalities are indeed at work in CSA and that these need to be understood and respected on their own terms, CSA is also subject to a capitalist political economy. This work showed that political economic conditions – including the scale of the farm and subsidised access to land – strongly impact CSA farmers' earnings. Galt (2013, p. 361) noted, 'in the longer term, CSA farmers' earnings may decline, since barriers to entry are small, economic rents are subject to erosion through competition ..., and "strategic imitation" ... of CSAs by delivery-based food retailers is occurring. Further analyses could show if competition already reduces CSA farmers' earnings'.

We pursue that further analysis here, starting with the hypothesis that competition for consumers' attention and food dollars is increasing as more AFN farmers seek entry into a marketplace and as conventional retailers emphasise local food. We note that competition is difficult to examine empirically, as it raises complex and nuanced questions about how well emic and etic understandings capture competition. Acknowledging this complexity, we seek to answer the following questions: To what extent does competition exist for CSA farmers in California? And, what impact does competition have on CSA farmers, farms, and farm-member relationships?

We answer these questions by focusing on CSA farmers in California, on the west coast of the USA. California is the USA's top grossing agricultural state, has well-developed channels of local and organic food provisioning through both direct and retail markets, and has the largest number of CSAs of all the states (Galt 2011). Thus, CSA farmers in California are amongst the most likely in the country to experience high levels of competition both from other CSAs and from other direct and retail market outlets focusing on local, seasonal produce. Through a survey of California CSA farmers, we examine CSA farmers' views of competition and conduct statistical analysis to examine possible effects of competition on a range of economic and social measures, including: farm finances, farmer satisfaction, CSA characteristics and CSA-member relationships (such as risk sharing), and farms' engagement with community food security efforts (such as gleaning). Before we examine the data, we first theorise how competition affects socially embedded AFNs, and CSAs in particular.

Theorising competition within alternative food networks

The existence and effects of competition are not well explored in research on AFNs, with the above-noted exceptions of research on organic agriculture and its

conventionalisation, and on European quality-focused embedded supply chains. Looking specifically at direct marketing relationships, there is little conceptual definition and theoretical clarity as to competition's existence and effects.

Following political economic theory, we suggest that competition has at least two main sets of consequences within AFNs. We first examine political economic tendencies that impact profit rates and production practices and then turn to tendencies related to the social embeddedness of exchange. Impacts on production and exchange practices along these two lines can be simultaneous and iterative, and farmers have some agency in determining precisely how their operations respond to competition.

The first impact of competition, identified by classical political economy, is to reduce profits available to producers. More specifically, farmers (or any entrepreneur or firm) producing at an average cost of production lower than the social average accrue excess profits, but these tend to be temporary 'because competition forces other producers to catch up or go out of business' (Harvey 1999, p. 31). In relation to CSAs, we theorise that as market saturation increases for local and organic produce in a variety of outlets – including mainstream and alternative grocery retailers, farmers' markets, farm stands, and other CSAs – the price points that consumers are familiar with will decline as competition increases. This, with everything else being equal, will cut into the profitability of CSAs, as it will move CSA farmers from a price setting position toward a price taking position.

With the erosion of surplus that CSA farmers capture, farmers have a few options. First, they can respond to this squeeze as capitalists, and either 'attempt to defend or restore profits by cutting costs' (O'Connor 1993, p. 131), or increase the number of units they produce thereby reducing their fixed costs per unit of production. Cutting labour costs includes reducing wages or hours to workers. Increasing production per unit input can involve increased exploitation of the land and/or its various environmental services. This might come in the form of employing fewer agroecological production practices, with a shift to organic input substitution (Rosset and Altieri 1997; Guthman 2004) or agrochemicals. It might also take the form of putting off capital investments in soil and/or biodiversity conservation, a consequence of minimal surpluses returning to farmers as political ecologists have long noted (Blaikie 1985; Blaikie and Brookfield 1987).

Second, farmers can reduce the other ways they distribute surplus value. When surplus coming to the farm becomes scarcer and must be more single-mindedly used for productive purposes for the farm to remain economically viable, this pressure will reduce these non-essential forms of distributing surplus value. Many AFN farms engage in non-capitalist forms of surplus value distribution, especially by participating in community food security strategies (see Bellows and Hamm 2002), such as donating excess produce to food banks, allowing gleaning by or for those in need, and accepting Electronic Benefit Transfer (EBT, the debit card payment form for California's Supplemental Nutrition Assistance Program for lower-income families, called CalFresh). Each of these relies on redistributing farm surplus in different forms (see Gibson-Graham 2006) – surplus money, labour, product, capital, or any combination thereof – which can be reduced if not necessary for short-term economic survival.

A third response to eroding profits is for farmers to reduce their own earnings – i.e., increase self-exploitation – which is a classic way that smallholders respond to competition in capitalist agriculture (Chayanov 1966; Friedmann 1978; Kautsky 1988; Galt 2013). The agrarian question is alive and well in AFNs, although the rationalities might differ from classical peasant rationalities focused on familial and cultural reproduction, in that CSA farmers' personal sacrifices are done for the environment and community connection (Galt 2013). Farmers' increased self-exploitation will lead to lower satisfaction with their work and to increased burnout, an important reason farmers leave CSAs (Lass *et al.* 2003). In short, faced with declining profits, farmers can squeeze their workers, their land, their communities, and/or themselves.

The second tendency we theorise, in Polanyian terms (Polanyi 1957), is that competition faced by CSAs will act to socially disembed exchange. Marsden (2004, p. 135) argues that all short food supply chains 'operate, at least in part, on the principle that the more embedded and differentiated a product becomes, the scarcer its presence in the market'. As more farms offer a similarly embedded product, competition will increase and disembed exchange by moving consumer, and perhaps producer, rationalities toward higher instrumentalism and higher marketness (see Block 1990). As Galt (2013, p. 348) explains, CSA as originally conceived was low in Block's concepts of instrumentalism and marketness:

CSAs that stay true to these original conceptions engage in transactions that are both low in marketness – price is not the consumers' sole consideration – and low in instrumentalism – the consumer prioritizes the well-being of farmers and farmworkers over their own economic interest, while the farmer is reciprocally not trying to maximize her or his own economic self-interest at the expense of others and the environment. This socially embedded exchange was created for mutual benefit, to blunt the often sharp edges of commodity markets, debt, and/or contract farming.

With more market saturation, price may become increasingly important to more CSA consumers – especially less-wealthy members – as the price difference between a more embedded exchange relation and a less-embedded exchange relation widens. Additionally, with more market outlets, some consumers will shop around more between different market outlets and different CSAs. In these situations, the strong social bond meant to be forged between farmer and consumer by CSA is undermined. Compromises farmers make to deal with the subsequent higher member turnover, fewer members, and/or reduced profits may produce a reinforcing feedback loop and further undermine the social bonds between farmer and consumer, as farmers' focus on productivity means devoting less time to socially embedded practices such as socialising on the farm or at the market, hosting events for members, and writing newsletters. Farmers might also begin to feel that they cannot ask for as much commitment from members – such as a long pre-payment period, or sharing risk – when other market outlets do not. An alternative exists, in that farmers might seek to define their CSAs in ways less easily replicated by competitors, and might thereby reinvest in a stronger bond with members; yet, since potential members have been strongly conditioned to respond to price, farmers using this strategy will likely face considerable difficulties, some of which we return to in the conclusion. In short, we

theorise that competition will erode the sense of community and support for the farmer in what is supposed to be community supported agriculture. To examine whether these theorised effects of competition are occurring, below we examine the relationships between competition and a number of variables related to the social embeddedness of CSA.

Methods

To conduct our study on CSA in California we started by developing a list of CSA operations in the state. We used online listings of CSAs, which are widely available due to most CSAs having an online presence. We aggregated publicly available CSA databases maintained by numerous organisations – LocalHarvest, Robyn Van En Center, California Certified Organic Farmers, and Community Alliance with Family Farmers – and then removed duplicate entries. We then performed web keyword searches for additional CSA operations using other web-based sources: Ecovian, EatWell Guide, and Eat Wild. We shared the compiled CSA list with five regional University of California Cooperative Extension Small Farm and Food System Advisors throughout the state, who added and removed CSA operations based on their familiarity with farms in their regions. A few farms were added to the list after the release of the survey (see below) because they were identified by a fellow farmer as one of the contributors to a multi-farm CSA. A total list of 606 possible CSA operations was thus compiled.

We sent these 606 possible CSAs a link to the online questionnaire we developed with input from an advisory committee of CSA farmers and UC Cooperative Extension Advisors. The questionnaire included questions in the following categories: type of CSA operation, farm partners and managers, farmland, crops and livestock, market outlets, farm finances, CSA share, membership, member retention, labour, and farmer motivations and satisfaction.

We administered the CSA farmer/operator survey from July 2013–January 2014. This collected 103 usable responses of existing CSAs and 8 usable responses of CSAs that had only recently discontinued their operations in 2012 or 2013.² Thus, the sample of 111 farms we refer to throughout the article is comprised of CSA farms that were in operation in 2012 and/or 2013. Additionally, 13 other discontinued CSAs responded briefly to the survey to note that they had discontinued their CSA operation and why they had stopped, and three farms that were never CSAs responded to the survey as such (data from these 16 CSAs were not included in the analysis).

We then sought to determine response rate. Using the methods below we found it was 45 per cent, high enough to make generalisations about the population of CSAs in California. We arrived at this by characterizing the 606 farms and operations using the following categories: 'Existing CSA', 'Discontinued CSA', and 'Never a CSA'. Categories were assigned to every CSA using a two-tier system. The first tier – farms that participated in the survey – relied on the responses from the CSA operation survey. CSA operators were asked if they had an existing, discontinued, or never had a CSA operation in 2013. The inclusion of CSAs is based on farmer/operator definitions of CSA; i.e., the research team did not impose a definition of CSA. Within this tier there were 103 existing CSAs, eight recently discontinued CSAs that provided

responses, 13 discontinued CSAs that did not provide responses, and three that were never CSAs, as noted above. The second tier consisted of 485 possible CSAs that did not respond to the survey. We attempted to verify the existence of each of these through email, phone, and/or the CSA's web contact form. Contacting these possible CSAs showed that 298 had never operated a CSA, 107 still existed but did not participate in the survey and a further 34 existing CSAs started the survey but did not complete it (this sums to 141 non-participating existing CSAs), and 46 had discontinued their CSA before 2012. Summing the CSAs that we confirmed to exist, we determined that there were 244 existing CSAs in California in 2012–2013, of which 111 completed the survey and 141 did not (hence the 45 per cent response rate).

Creating a metric of competition: the perceived competition index

We created a perceived competition index – a thoroughly emic variable that attempts to capture competition as it is experienced and interpreted by those making economic decisions – by summing two variables. First was farmers' perceptions of the strength of competition they face, which we calculated by taking the average of each farmer's views of the level of competition between their CSA and four different market outlets in their sales region(s): other CSAs, other direct market channels (e.g., farmers' markets), retail market channels (e.g., grocery stores), and grocery home delivery services. These were quantified as follows: 0 = non-existent, 0.25 = mild, 0.5 = moderate, 0.75 = strong, 1 = very strong (a spread of 0 to 1 was used since this first variable in the perceived competition index was summed with a binary variable, as described below). Overall, the average of farmers' perceptions of competition in their market region was 0.57 (standard deviation = 0.26), with a median of 0.5.

The spread was wide for farmers' perception of competition with other CSAs in their market region. Only 10 per cent of farmers noted it was non-existent, while 42 per cent noted it was strong (14 per cent) or very strong (28 per cent). Indeed, almost two-thirds (63 per cent) of the farmers noted competition with other CSAs was moderate or stronger.

As for farmers' perception of the levels of competition between CSAs and other produce channels, CSA farmers felt strong competition with other direct marketing outlets and retail outlets. Overall, farmers felt that there is more competition with other direct marketing outlets than between CSAs (81 per cent of farmers said it is moderate or higher). Farmers noted that competition with retail channels was similar (82 per cent noted it was moderate or higher). Retail outlets in California now strongly emphasise the localness of their products. In contrast, farmers felt competition was relatively low with grocery home delivery services, an emerging market spurred by technological innovation (46 per cent of farmers said it was moderate or above).

The second variable used in our perceived competition index was whether farmers feel constrained by competition in their ability to raise their CSA share prices. This is a binary variable, 0 or 1, coded as explained below. Creating this variable took a number of steps. To collect the data, the survey first asked farmers if their CSA was as profitable as they would like. If they answered yes, then their value for the constrained by competition variable was easily coded as a '0' (meaning they are not constrained by competition since their profits are acceptable to them). If they answered 'no,' which

was 73 per cent (69 of 95) of farmers, the survey then asked an open-ended question: 'why don't you raise your share prices?' Of the 69 farmers who were not satisfied with their CSA's profitability, 64 answered the open-ended question.

We coded these 64 responses, proceeding iteratively to first identify the categories of reasons, then classifying each answer, and creating new categories if we found responses that did not fit our initial categories. We decided that farmers were directly constrained by competition if they: (1) mentioned competition, (2) described competition explicitly, and/or (3) described the concept of competition implicitly by mentioning consumers' unwillingness to pay more or other type of comment about price inelasticity or being price takers. We decided that other constraints, including the common response of the market size being too small (not enough potential members), do not adequately represent competition. We should note that market size being too small might indeed be an effect of competition (in that a market might be saturated and therefore there are few remaining potential members), but many farmers mentioned it as a feature of rural areas with small populations and/or areas with lower incomes that have smaller populations of people willing to pay higher produce prices. With the small market size category there was not enough context to determine what might account for the small market size, so we decided to be conservative and not attribute to competition the constraints that farmers attributed only to market size.

Thirty-six of the open-ended responses fell into the category of being constrained in raising CSA share prices due to competition. Of the remaining 28 farmers not satisfied with the profitability of their CSA, nine farmers did not express feeling constrained by anything in particular, while the others identified a number of other reasons.

To create the perceived competition index, we summed the two variables described above since they gave us the best combined indicator that farmers were being impacted by competition. The perceived competition index has a range from 0 to 2, with a mean of 1.01, standard deviation of 0.59, and median of 1. A 0 to 0.25 score on the index means that a farmer sees very little competition with other market outlets in the sales region and that the farmer does not feel like competition is preventing her/him from raising CSA share prices. On the other hand, a score of 1.75 to 2 means that a farmer sees very strong competition with other market outlets in the sales region and that the farmer feels this competition prevents her/him from raising share prices. We omit a geographic analysis of the perceived competition index, and its constituent variables, here because the analysis would require an additional article.⁴ We instead focus on how it relates to characteristics of social embeddedness.

Importantly, the perceived competition index is not an 'absolute' measure of competition faced by CSAs. There is a large empirical challenge in creating valid etic measures of competition for CSAs, a point discussed further in the conclusion. Nonetheless, the strength of the perceived competition index is that it allows us to empirically examine how farmers who feel constrained by competition react in terms of shaping their CSA (payment periods, etc.). The range in the variable makes it exciting to explore how it is related to other aspects of CSA, to which we turn below.

Findings

Forty per cent of farmers (36 of 90) noted competitive pressures that prevented their CSA from being as profitable as they would like, while 31 per cent (28 farmers) noted that their CSA was not as profitable as they would like for another reason, and another 29 per cent (26 farmers) were satisfied with their profitability. Thus, the answer to our first question – to what extent does competition exist for CSA farmers in California? – is that many farmers perceive strong competition, but the experience of competition is highly variable.

More than a third of California CSA farmers have lower profits from their CSA than they would like, which suggests that something is happening to create a disconnect between the original conception of CSA and how it is practiced, which could be an effect of competition. We now turn to examining the possible impacts of competition on CSA characteristics and CSA-member relationships. We do this by examining bivariate correlations between the perceived competition index and variables in the following categories: finances, farmer satisfaction, CSA characteristics and CSA-member relationships, and community food security strategies used by CSAs.

Competition and CSA finances

Profitability for CSAs is difficult to measure for a number of reasons. First, most CSA farms in California rely on a number of different market outlets to sell their goods, which reduces the farm's marketing risk (Hardesty and Leff 2010). This means that profitability for the farm is a function of the combined profitability of a variety of different market outlets. Our survey shows that CSAs in California use an average of 3.3 market outlets of the following kinds: CSA, farmers' markets, on-site sales (farm stands, you-pick), mail order/internet, other direct-to-consumer sales, direct-to-retail sales, wholesale market sales, and services and other non-farm-good sales. Only 4 of 95 CSAs rely on CSA exclusively for their sales.

Of these market channels, CSA is the second least likely to be profitable, with 53.8 per cent of CSA farmers reporting that their CSA is profitable. This is consistent with Galt's (2013, p. 351) findings from a study of California's Central Valley CSAs, in which 54 per cent of farmers reported their CSA was profitable. It is important to note that this is using farmers' (emic) definitions of profitability, which can include or exclude their own earnings depending on how they calculate their budgets (Levins 1996; Galt 2013). Thus, this percentage should be taken as meaning that 53.8 per cent of the CSAs produce and capture as money some kind of surplus economic value, potentially ranging from extremely small (not enough to live on) to quite large. The other 46.2 per cent of farms are likely losing money on their CSAs. Most other direct market outlets are more likely to be profitable than CSA (farmers' market, 55 per cent; on-site sales, 63.9 per cent; mail order/internet sales, 83.3 per cent), as is wholesale (66.7 per cent). Direct-to-restaurant is the only market outlet less likely to be profitable than CSA (48.1 per cent).

The perceived competition index developed for this study is strongly negatively correlated with two variables related to profit, as shown in Table 1a:

Table 1: Relationship between perceived competition index and other variables

	Variable descriptors		Correlation with perceived competition index		
	Mean	n	Coefficient	p-value	n
a. CSA finances					
Profitability					
The level of profitability of the CSA (scaled)†	2.45	93	-0.31	0.00***	81
Whether the CSA is profitable (binary)	53.8%	93	-0.26	0.01***	81
Net profit rate, with farmer earnings as expense (i.e., surplus after earnings)	-1%	60	-0.14	0.15	56
Gross profit rate, including farmer earnings	17.7%	47	0.05	0.39	33
Earnings and wages					
Farm partner annual earnings (per farm partner)	\$14,258	44	0.16	0.15	41
Year-round farmworker hourly wage	\$11.03	35	-0.05	0.41	30
Seasonal farmworker hourly wage	\$9.22	36	-0.13	0.24	32
Management employee hourly wage	\$13.14	22	-0.17	0.28	14
b. Farmer satisfaction‡					
Financial ability to meet annual operating costs	3.07	81	-0.21	0.05**	64
Farmer compensation	2.64	80	-0.23	0.03**	64
Financial security for farmer including health insurance, retirement, etc.	2.15	79	-0.10	0.22	63
Financial ability to build and maintain physical farm infrastructure	2.87	79	-0.17	0.09*	64
Farmer stress level/quality of life	3.08	79	-0.34	0.00***	63
Maintenance or improvement of soil quality	3.86	80	-0.15	0.12	64
Workload for the farmer	2.88	80	-0.39	0.00***	64
Compensation for other workers	2.99	69	-0.14	0.15	55
Workload for other workers	3.42	69	-0.35	0.00***	55
Community involvement	3.45	80	-0.22	0.04**	64
Average satisfaction	3.02	81	-0.32	0.00***	64
c. CSA characteristics and CSA-member relationships					
CSA characteristics (Likert scale)‡					
The farm shares production risk with members	2.29	97	-0.16	0.09*	74
Members form a supportive community around the farm	3.37	99	-0.34	0.00***	75
Members get good value for their money	4.49	99	-0.05	0.34	75
Member payments cover the costs of production for the CSA, including farmer earnings	3.23	99	-0.41	0.00***	75
Members are not particularly loyal	3.37	99	-0.08	0.25	75
CSA-member relationships (binary variables)					
Membership grew between 2012 and 2013	57.0%	93	-0.23	0.03**	69
The CSA hosts events	56.0%	91	0.12	0.16	71
Members pre-pay in advance for shares	90.1%	91	0.02	0.43	71
A core group of members helps with production decisions	5.5%	91	-0.24	0.02**	71
A core group of members helps with CSA share distribution	9.9%	91	-0.07	0.28	71
Minimum payment period§	4.58	81	-0.13	0.07*	62
d. Community food security strategies					
The CSA accepts EBT (for CalFresh, WIC, etc.)	15.5%	103	-0.10	0.20	77
The CSA has lower-priced shares for low-income households	18.4%	103	-0.21	0.03**	77
The CSA donates CSA shares or food (to food banks, hospitals, etc.)	45.6%	103	0.14	0.11	77
The CSA allows for gleaning by those in need or organisations that serve them	18.4%	103	-0.18	0.06*	77
The CSA maintains low share prices to increase food access	37.9%	103	0.05	0.33	77
Other strategy	8.7%	103	0.13	0.14	77

Notes: Significance noted with * ≤ 0.10 , ** ≤ 0.05 , *** ≤ 0.01 .

† 1 = operating at a loss, 2 = break-even, 3 = profitable, 4 = very profitable.

‡ 1 = very unsatisfied, 2 = unsatisfied, 3 = mixed feelings/neutral, 4 = satisfied, 5 = very satisfied.

§ 1 = weekly, 2 = bi-weekly, 3 = 3 weeks, 4 = monthly, 5 = 1.5 months, 6 = 2 months, 7 = quarterly, 8 = half season, 9 = full season.

- the level of profitability of the CSA, a categorical variable per Table 1a ($r = -0.31$, $p = 0.00$) and
- whether the CSA is profitable, a binary variable ($r = -0.26$, $p = 0.01$).

The very strong relationships between the perceived competition index and the two measures of profitability of CSA shows that many CSA farmers who are not profitable attribute it to competitive pressures. If we interpret farmers' perceptions as accurate indicators of competition, this relationship shows that competition is preventing some CSAs in California from being profitable.

We also gathered specific data on farm finances, although response rates for these questions were much lower than for the overall survey. Table 1a shows that competition was not significantly related to net profit rates (as determined with farmers' earnings as expenses) nor gross profit rates (with farmers' earnings counted as surplus earnings). It is important to note that the farm finance data includes all market channels, not just CSA, so it is not especially surprising that the relationship is weaker since the overall profit rate is influenced by the profitability of all of the other market channels that CSAs use. In some cases, farmers do not expect their CSA to be profitable, but rather rely on other market channels to create their profits (see also Hardesty and Leff 2010).

As noted in our theorising above, rather than decreasing their own salaries, farmers can also attempt to cut wages of workers to maintain profits when faced with competition. Table 1a shows the relationship between the perceived competition index and earnings. While none of these relationships are statistically significant, farmers' earnings are weakly, positively correlated to competition⁵ and all other workers' wages are weakly, negatively correlated. It is interesting to note that management workers' wages are most negatively correlated with competition (even though this is not significant, as there are only 22 of these farms); this makes sense, as they are likely to have the highest wages on the farm and the greatest potential for reduction especially compared to farmworkers, whose wages are already likely to be very low and cannot legally drop below minimum wage. Additionally, since farmworkers are critical for the production of the goods sold, farmers cannot easily reduce their numbers without risking the loss of perishable crops, or without increased self-exploitation.

Competition and farmer satisfaction

We surveyed farmers about their satisfaction with many facets of their CSA and farm, using a question from a previous national CSA survey (Lass *et al.* 2003). As shown in Table 1b, using a Likert-scale question (with strongly disagree scored as 1 and strongly agree scored as 5), farmers were on average satisfied with maintenance or improvement of soil quality (3.9), community involvement (3.5), and workload for other workers (3.4). Farmers rated lower (an average around 3.0) their financial ability to meet annual operating costs, farmer stress level/quality of life, and compensation for other workers. Farmers had slightly more negative assessments of their financial ability to build and maintain physical farm infrastructure (2.9), and workload for the farmer (2.9). There was stronger negative assessment of their own compensation

(2.6), and they were on average unsatisfied with their own financial security including health insurance, retirement, etc. (2.2).

In analysing farmer satisfaction vis-à-vis the perceived competition index, we found strong indications that farmers' sense of competition has a negative effect on their wellbeing (Table 1b). The perceived competition index provides an important explanatory variable in relation to these quality of life measurements. The strongest associations are with:

- farmer stress level/quality of life ($r = -0.34$, $p = 0.00$)
- workload for the farmer ($r = -0.39$, $p = 0.00$) and
- workload for other workers ($r = -0.35$, $p = 0.00$).

Farmers' feelings of being constrained by high levels of competition are strongly related to a high level of stress and a high workload for them and their employees. Indeed, these are some of the strongest correlations in the dataset, which corresponds with agrarian political economic theory discussed above: when facing competitive situations, farmers have a strong tendency to self-exploit (Chayanov 1966; Galt 2013).

There are other negative associations between the perceived competition index and financial satisfaction, specifically:

- financial ability to meet annual operating costs ($r = -0.21$, $p = 0.05$) and
- farmer compensation ($r = -0.23$, $p = 0.03$).

Lastly, another strong negative correlation exists between the perceived competition index and farmers' satisfaction with community involvement ($r = -0.22$, $p = 0.04$). Farmers who feel more strongly constrained by competition are more likely to be unsatisfied with community involvement. We now turn to this relationship in more depth.

Competition and CSA characteristics and CSA-member relationships

We asked farmers to evaluate a number of statements about their CSA's characteristics (Table 1c). Farmers ranked their agreement with each statement using a Likert-scale response. Three characteristics were negatively and significantly correlated with the perceived competition index:

- the farm shares production risk with members ($r = -0.16$, $p = 0.09$)
- members form a supportive community around the farm ($r = -0.34$, $p = 0.00$) and
- member payments cover the costs of production for the CSA, including farmer earnings ($r = -0.41$, $p = 0.00$).

These findings show that CSAs of farmers who perceive higher levels of competition are less likely to have crucial features that support farmer wellbeing: sharing of risk, member support, and covering costs of production. For example, in an open-ended response to a question about farm-member relationships, one farmer who perceives very high levels of competition noted, '[There is] too much competition for us to share risk with our members. We ALWAYS have to have a GREAT CSA box!' Another noted, 'Ha, ha. The [forest fire] changed my perspective entirely. CSA members demanded

refunds for the two weeks we were shut out of the farm and unable to make deliveries. Supportive community?’ While we do not know what these members did afterward, their actions contradict the normative commitment of CSA, and many farmers likely feel members’ lack of commitment as an expression of competition from other market outlets.

Along with these relationships, we also examined the relationship between the farms’ minimum payment period (e.g., one week, the season, a year, etc.) and competition. We found a negative correlation with the index of payment period (as explained in the second footnote of Table 1c), where $p = 0.07$. This suggests that increased competition is reducing the length of time farmers make members financially commit to in advance, which corresponds with the correlations around decreased member support.

We can assess the relationship between competition and CSA-member relations through other, more direct questions about farm-member relationships. We asked farmers for yes or no responses to a number of statements about the characteristics of their farm-member relationships (Table 1c, bottom portion).⁶ Of these characteristics, only two were strongly correlated with the perceived competition index:

- membership grew between 2012 and 2013 ($r = -0.23$, $p = 0.03$).
- a core group of members helps with production decisions ($r = -0.24$, $p = 0.02$).

Membership growth is negatively correlated with competition, suggesting a link as theorised by political economy. As for core groups – which form a supportive member network around the farm by helping with production decisions (what to plant), with membership, and/or delivery management (Lamb 1997) – it is important to note that only five CSAs have core groups, and that these five have an average of 0.45 for the perceived competition index, compared to the average of 1. This suggests that incorporating a core group into the operation of the farm – not an easy task, but one that fits the original conception of CSA – could be a strategy for farmers to enhance member loyalty to the farm, thereby reducing the farmers’ feeling of competition. With the original concept of CSA, this strong member support – even if costs of CSA produce are higher than that available in other markets – was a key strategy to break the cycle of competition and its negative effects.

In terms of ecological practices and characteristics associated with the original conception of CSA, we observe no significant correlation with the perceived competition index. Some of these indicators include crop diversity ($r = -0.01$, $p = 0.48$), integration of livestock and crops on the same farm ($r = 0.03$, $p = 0.40$), and organic or biodynamic certification ($r = -0.1$, $p = 0.19$).

Competition and community food security strategies

75 per cent of CSA farmers (78 of 103) noted that they pursue some sort of community food security strategy. This corresponds with other assessments that CSA managers are interested in the affordability of their produce (Guthman 2008). Of these 78 farms, 47 donate to a food bank or similar organisation, 39 maintain low share prices for greater accessibility, 19 have lower-priced shares for low-income households (a

sliding scale), 19 allow gleaning by those in need or organisations that serve them, 16 accept EBT, and 9 have another strategy to enhance food access among their members and community.

In looking at how use of community food security strategies relate to competition as measured by the perceived competition index, three are negatively correlated and three are positively correlated (Table 1d), but only two of these correlations are significant. These are:

- the CSA has lower-priced shares for low-income households ($r = -0.21, p = 0.03$) and
- the CSA allows for gleaning by those in need or organisations that serve them ($r = -0.18, p = 0.06$).

Competition might be cutting into the willingness to serve others. Lower-priced shares can be a form of the farm subsidising members' purchasing, a form of surplus redistribution that would become more difficult as farm profits decline. For gleaning, it might be that farmers do not want to undercut their own prices by offering goods for free, but it may be for other reasons, such as the time needed to safely oversee gleaning by people less familiar with farming.

Discussion

Table 2 shows a summary of the statistically significant correlations between the perceived competition index and the variables examined above. Additionally, Table 2 shows the averages of the variables for all CSAs in the study, and then for three subgroups: (1) CSAs not satisfied with profitability and constrained by competition, (2) CSAs not satisfied with profitability but not constrained by competition and (3) CSAs satisfied with profitability. In comparing the averages of these three groups, every average but one moves from low to high, consistent with the correlations.

If we take the perceived competition index as a useful indicator of the competitive pressures farmers face, our analysis strongly suggests that competition is having negative consequences for the CSA farmers most impacted by it. Marsden (2004, p. 131) notes that for producers, participating in AFNs with new supply chains – direct marketing and closely related strategies – ‘offers possibilities of retaining more added value on farms and in rural areas ... [and] holds potential for shifting food production out of “industrial mode” and for breaking out of the long, complex and rationally organised industrial chains ... within which primary producers capture a decreasing proportion of total added value’. Competition as experienced by CSA farmers appears to be eroding the many benefits of breaking out of the industrial mode of production.

Competition's effects manifest in a variety of ways, first and foremost in terms of lack of profitability, consistent with political economic theory of competition. The data also suggest that competition strongly reduces farmer satisfaction on a number of fronts. Compared to all questions around satisfaction, farmers' level of satisfaction with their own compensation was the lowest for group 1 (CSAs not satisfied with profitability and constrained by competition). Yet, we also showed that competition was negatively but not significantly correlated with workers' wages, and it was not at all correlated with farmers' satisfaction with building and/or enhancing soil quality nor with various indicators of agroecological commitment, such as crop diversity,

Table 2: Summary of significant relationships between perceived competition index and various variables

	Correlation with perceived competition index		Variable averages by group				
	coefficient	p-value	n	All CSAs	1. CSAs not satisfied with profitability and constrained by competition	2. CSAs not satisfied with profitability but not constrained by competition	3. CSAs satisfied with profitability
Perceived competition index	-	-	86	1.0	1.6	0.6	0.5
a. CSA finances							
The level of profitability of the CSA	-0.31	0.00***	81	2.5	2.1	2.4	3.0
Whether the CSA is profitable	-0.26	0.01***	81	54%	37%	57%	76%
b. Farmer satisfaction							
Financial ability to meet annual operating costs	-0.21	0.05**	64	3.1	2.7	3.0	3.7
Farmer compensation	-0.23	0.03**	64	2.6	2.1	2.3	3.3
Financial ability to build and maintain physical farm infrastructure	-0.17	0.09*	64	2.9	2.4	2.9	3.4
c. CSA characteristics and CSA-member relationships							
The farm shares production risk with members	-0.34	0.00***	63	3.1	2.7	3.3	3.4
Farmer stress level/quality of life	-0.39	0.00***	64	2.9	2.6	3.0	3.3
Workload for the farmer	-0.35	0.00***	55	3.4	3.2	3.8	3.8
Workload for other workers	-0.22	0.04**	64	3.5	3.3	3.6	3.9
Community involvement	-0.32	0.00***	64	3.0	2.7	3.0	3.5
Average satisfaction	-0.16	0.09*	74	2.3	2.2	2.7	2.1
d. Community food security strategies							
The farm shares production risk with members	-0.34	0.00***	75	3.4	3.1	3.5	3.6
Members form a supportive community around the farm	-0.41	0.00***	75	3.2	2.6	3.4	3.9
Member payments cover the costs of production for the CSA, including farmer earnings	-0.23	0.03**	69	57%	48%	63%	55%
Membership grew between 2012 and 2013	-0.24	0.02**	71	5%	0%	8%	14%
A core group of members helps with production decisions	-0.13	0.07*	62	4.6	4.4	4.9	5.6
Minimum payment period	-0.21	0.03**	77	18%	9%	15%	35%
Community food security strategies							
The CSA has lower-priced shares for low-income households	-0.18	0.06*	77	18%	12%	15%	30%
The CSA allows for gleaming by those in need or organisations that serve them							

Note: Significance noted with * ≤ 0.10, ** ≤ 0.05, *** ≤ 0.01.

animal integration, and organic/biodynamic certification. Taken together, these data suggest that CSA farmers are more likely to engage in self-exploitation, and perhaps some worker exploitation, and to reduce the social embeddedness of their CSA (including payment periods and some community food security strategies), rather than exploit the environment as a way of dealing with competitive pressures. While this might reflect farmers' values, further research can determine whether the organic certification and/or agroecological commitments in CSA, often necessary for capturing a premium, constrain the externalisation of negative environmental impacts when facing a cost/price squeeze.

Overall, while political economic theory suggests that environmental or worker exploitation are different routes that CSA farmers could take to deal with competition, our data show that these routes are much less common than self-exploitation. Further qualitative research about how AFN farmers cope with competitive pressures, and the kinds of constraints imposed by members' perceptions and preferences (such as a stronger commitment to environmental sustainability than social justice), would be useful to examine these choices, processes, and outcomes.

Competition is also negatively correlated with indicators of social embeddedness, and thus appears to be having disembedding effects on CSA and its exchange relationship. This is shown in a number of ways. First, for the group of CSAs facing the strongest competitive pressures (Group 1 in Table 2), farmers feel that members are on average not covering the costs of production, and these farmers perceive members to be the least supportive. Farms facing high levels of competition are least likely to be sharing risk with their members, and are much less likely to have a core group. They also have shorter minimum payment periods and are more likely to have steady or declining membership. In these ways, the original socially-embedded conception of CSA as a risk-sharing endeavour and a strong member-farmer bond is least likely to exist for farmers feeling constrained by competition. Additionally, many CSA farmers want to increase access to fresh produce, and, while the data are mixed about whether competition reduces CSA farms' engagement in community food security, it does have a negative impact on farms having lower-priced shares for low-income households and in allowing access to gleaning. Thus, Galt's (2013) question of whether competition reduces farmers' earnings is too narrowly focused, as the effects appear to be more widespread vis-à-vis social embeddedness than just profitability and farmer earnings.⁷

Conclusion

By studying CSAs in California, we have attempted to empirically examine the effects of competition on AFN farmers and relationships. This initial effort succeeded in showing that competition – as measured through the perceived competition index – is negatively correlated with CSA farms' profitability, farmers' satisfaction on a number of fronts, various indicators of the social embeddedness of CSA, and two community food security strategies. We have shown that competition is a real, and differential, phenomenon experienced by CSA farmers in California, and it is having impacts on CSA that work against some of its commonly held values, especially fair farmer compensation and strong member-farmer connections. Below we conclude on

two main points, the first about further research and the second about strategies that actors in AFNs might employ to mitigate the effects of competition.

Since our analysis relied upon farmers' perceptions for measuring competition, future quantitative analysis could examine competition by using data about the market regions of the various farms (e.g., number of CSAs per capita in a county). Although not presented here, our preliminary analysis along these lines showed very few significant relationships, in part because the metrics of competition we constructed from secondary data were likely inadequate, as per capita counts have little to do with the number of CSA members and potential members in a region since CSA members generally have higher incomes than average, and since CSAs located in close proximity to one another often have memberships in different regions. Thus, etic measures of competitive pressures from secondary data would have to become more refined to be effective.

Especially promising for understanding competition in AFNs is qualitative analysis to examine the dialectic between competition and community support. We showed a strong negative correlation between competition and having a core group of members that help with production decisions, but we do not know the way(s) in which causation is occurring. Having a core group might insulate farmers from feeling competitive pressures, as their members would tend to stay on the low end of the marketness spectrum. In this way, core groups might be a protective strategy for the CSA, with social embeddedness working to envelop and condition market forces (Feagan and Henderson 2009). Conversely, it might be extremely challenging to create a core group when CSA options abound and require little up-front commitment from members. Thus, examining those farms with core groups to understand whether they can exist and/or be created in highly competitive circumstances could determine whether this form of social embeddedness can buffer competitive pressures. More broadly, further research is needed into how competition acts as a socially disembedding process – in concert or against other processes leading toward embeddedness or disembeddedness – and how it changes as AFNs mature.

Fortunately, there are some proactive measures that AFN actors might take in response to increasing competition. There are a number of strategies specific to CSA, and all require concerted effort. CSAs could work on expanding membership to groups not typically well represented among CSA membership, which could temporarily reduce competition by creating a larger customer base. This can draw upon work on how racial, ethnic, and class cultural coding works around food (Alkon 2012; Boulé 2012; Alkon *et al.* 2013; Bradley and Galt 2014) and be much more conscious of the way whiteness operates in AFNs (Guthman 2008). This, however, does not change the dynamics of competition once expanded markets become saturated.

Changing the dynamics of competition could rely more on reworking the social arrangements of CSA. Studying and drawing upon Rudolf Steiner's concept of economic associations – the original underpinning of CSA (Lamb 1997) – might allow farmers and members to create a socially embedded exchange relationship more resistant to the undercutting effects of competition. Moving beyond the scale of individual CSAs, CSA farmers could create more co-operative arrangements between their CSAs to reduce between-CSA competition in the same region. Rather than chasing the same pool of customers, CSAs serving the same market region could

divide their efforts through more specialisation on the farm (supplying just a portion of the share rather than all of it), as well as other forms of division of labour such as co-ordinated marketing, logistics, distribution, and use of equipment that could allow for shared costs and greater efficiency through more specialisation by farm and aggregation of product. While requiring considerable co-ordination effort, it might allow farmers to put more effort toward activities other than managing an extremely wide range of plants and/or animals and business functions. Lastly, CSA farmers together – at a variety of scales from local to national – could create educational efforts to provide for their common good, such as collective marketing to promote CSA generally by educating consumers about the seasonality of local produce, the value of connecting with farmers and the environment, and the difference between CSA and marketing efforts that imitate it.⁸

Outside of AFNs, there are larger-scale institutional supports for small- and mid-scale farms that could be pursued, since relying on markets alone means that the pernicious effects of competition will continue to erode the implementation and realization of the values that set AFNs apart from their conventional counterparts. Lobbying for the USA agricultural subsidy systems to be changed toward supporting agroecologically-oriented and/or small- and medium-scale family farms could help CSA farms through channels other than increasing membership or market share. State support for AFN-oriented and small- and mid-scale farmers should be a political goal of the supporters of AFNs, as relying on markets alone reproduces the conditions to which AFNs responded: competitive dynamics undermining social and environmental wellbeing.

Notes

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¹ There are, however, less binary framings. For example, Kloppenburg *et al.* (1996, p. 36) argue that a ‘foodshed will be embedded in a moral economy that envelopes and conditions market forces’ (see also Hinrichs 2000), and Goodman (2000) argues that the binary should be conceived of as an interface.

² There were an additional 34 responses from existing CSAs that were not sufficiently filled out. We used these responses to determine that these CSAs existed at the time to calculate response rate.

³ For this question, farmers were asked to consider their CSA’s sales region as a whole. Elsewhere in the survey we asked about location of the farm and marketing regions by county.

⁴ Using data on the farm location and the primary, secondary, and tertiary counties that make up each CSA’s sales region, we found that CSAs rarely overlap entirely with other CSAs in their sales counties. In our dataset, when considering CSAs that overlap entirely in their sales counties, there are just seven pairs, four groups of three, and one group of seven. Within each of these pairs and groups there is considerable variation in the perceived competition index between CSAs. We suspect there are many reasons that farmers perceive competition differently even when focused on the same county. CSAs often differ considerably in their geographic focus within a county, with different CSAs focusing on different cities or areas of cities, meaning that farmers might be gauging competition based on different cities in the same county. Additionally, CSAs often have different production focuses, so that even those selling to the same region might focus on different products, including various mixes of vegetables, fruit, eggs, grains, and/or meat. Lastly, CSAs vary considerably in their box size and cost even in the same region, which places them in

different niches of the produce market (e.g., some boxes are more than \$50 per week). Thus we suspect that the variation in the perceived competition index even between CSAs selling in the same county is due not just to variation amongst farmers' perceptions, but also due to a host of other qualitative market aspects. Further analysis could examine these in more depth, as noted in the conclusion.

- 5 While this is counterintuitive, it is important to note that only 44 farms provided their earnings information, so this specific dataset is considerably smaller than the ones in the other correlations.
- 6 The exception to this method was determining whether the farm experienced a growth in membership between 2012 and 2013, which we calculated directly from farmers' responses to member numbers for those years.
- 7 The question is also extremely difficult to examine empirically, since farmers' earnings depend upon all of their market channels, rather than just CSA, and their budgeting typically does not allow one to disaggregate the contributions of the various market channels to their earnings.
- 8 The state of California has already taken a related step by unanimously passing Assembly Bill 224, the Agricultural Products: Direct Marketing: Community Supported Agriculture Bill (Gordon 2013). The bill extends protection to CSAs similar to those awarded to other direct market outlets, and defines what is and is not considered a CSA.

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