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SUSTAINING URBAN AGRICULTURE'S SOCIOECONOMIC IMPACT: THE POTENTIAL OF VEGETABLE BOX SCHEMES IN CAPE TOWN, SOUTH AFRICA

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Abstract

Urban agriculture is now a component of many countries' development policies. The social benefits of urban agriculture (such as improving food security, fostering community cohesion and promoting ecological biodiversity) are well documented the world over, including South Africa. However, for development-oriented urban agriculture to make a durable and meaningful contribution to chronic poverty, it must also present viable, sustainable business opportunities for economic empowerment and growth. In this study, vegetable box schemes are set forth as a context-appropriate, economically feasible example of an urban agriculture enterprise for which real demand exists. When operated via a social enterprise business model, box schemes offer skills-building opportunities and market inclusion to disadvantaged urban farmers, and may also provide a vehicle for promoting social connection, thereby expanding urban agriculture's positive socioeconomic impact. This study analyses a survey of 354 current subscribers to vegetable box schemes in Cape Town, as well as presents two preliminary case studies of urban farmers currently producing for box schemes, to explore the relevant opportunities and limitations. Key findings include: a demonstrable demand for vegetable boxes in household expenditures; identification of some of the less visible constraints on success faced by even 'exceptional' urban farmers; opportunities for expanding vegetable box schemes; and the ability of a social enterprise model to deliver for, and compete in, the fresh produce market. Practical suggestions are offered for urban agriculture development policies and programmes aimed at addressing poverty, as well as for collaboration among government, business and community stakeholders.

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1. INTRODUCTION

Over the past four decades, urban agriculture has been positively linked – to varying degrees – to improvements in food security, income poverty, social marginalisation, economic development and ecological conservation. Broadly defined as “the cultivation, processing, marketing and distribution of food crops and products in an urban environment and for the benefit of urban residents” (City of Cape Town, 2007), urban agriculture addresses many of the key socioeconomic issues faced by cities.

Urban agriculture improves and conserves city environments by recycling organic wastes, building soil quality and ‘greening’ urban landscapes (May and Rogerson, 1995). Lower costs for food production and transport reduce energy outputs, and the repositioning of global producer-consumer relations in the local community presents cities with opportunities for economic growth through urban agriculture enterprise (Brown et al., 2009; Hinrichs, 2000). In this way, urban agriculture contributes to the establishment of an alternative local food system and it may promote economic development primarily by creating small urban farming business focused on growing and selling food, but also via numerous ancillary enterprise opportunities such as food transport or delivery services, compost production, seedling propagation or sale of value-added food products like chutneys or dried herbs (Walker, 2011).

Where social issues are concerned, it has been demonstrated that community- and household-level urban agriculture projects reduce hunger and malnutrition by providing the urban poor with greater access to healthier foods (UNDP, 1996). This in turn reduces household expenditures on food – which often make up the largest portion of urban household budgets, especially for low-income residents (Ruel and Garrett, 2004) – and frees up scarce cash resources for other needs (Foeken, 2006). Given that city dwellers are highly dependent on cash income to pay for household expenses, urban agriculture’s positive contribution to resource allocation is meaningful, especially where high levels of unemployment and rising food prices are complicating factors (Battersby-Lennard, 2011). Urban agriculture may further contribute to poverty reduction strategies by providing low-income farmers with income generation and employment prospects related to small-scale food production (Hovorka et al., 2009).

Beyond its impact on physical and financial well-being, the practice of urban agriculture is also a powerful source of empowerment, leadership development and social cohesion in the community (Dunn, 2010). Particularly in situations where historical inequalities persist, urban agriculture has been recognized as having a role in redressing societal imbalances related to gender, race and poverty (Battersby-Lennard et al., 2009; Phiri, 2008) not only through community capacity-building, but through increased public attention to fundamental issues of social equity and redistribution such as land reform, the need for formal engagement with the informal economy and institutional support of historically oppressed communities.

When urban agriculture is undertaken in a development context, its demonstrated benefits and opportunities can be leveraged to maximize its socioeconomic impact for cities and the people inhabiting them. However, the success of development-oriented urban agriculture programmes is largely dependent upon planning for sustainability from the outset. The concept of sustainable development requires attention to the interconnectedness of the social, ecological and economic systems in which we live (Barbier, 1987) with the general idea being that humanity depends upon

the environment to live, society exists within the environment and the economy is a product of society (Hopwood et al., 2005). Therefore, sustainable approaches to poverty alleviation should aim to simultaneously promote economic growth, social equity and resource conservation through participatory, adaptive and capacity-strengthening processes (UNDP, 2003). At the municipal level, sustainable development requires new entrepreneurial initiatives focused on investing in the local environment, employing people while improving their resource bases and strengthening responsive local institutions (Marsden and Smith, 2005).

It has been demonstrated that the practice of urban agriculture addresses key social and environmental issues; what is less well established is its economic feasibility. Many development strategies fail to give adequate attention to the real opportunities and constraints posed by the role of market forces in poverty alleviation (Dorward et al., 2003). Central to sustainably expanding urban agriculture's impact, therefore, is identifying and growing a viable, context-appropriate market for urban agriculture products. This means that there must be a clear understanding of local market supply and demand and how products move "from seed to table" in order to create meaningful, durable and mutually beneficial linkages between urban farmers and urban consumers (Dubbeling et al., 2010). Over the past twenty years, there has been a growing consumer trend in industrialised countries towards a preference for local, organic produce but this niche market has only recently begun to develop in the global South (Haldy, 2004; Bienabe et al., 2011). The emergent growth of this trend in South Africa represents an opportunity on which urban agriculture enterprises can capitalise.

Sustainable development thinking further necessitates undertaking urban agriculture enterprise development through a business model that explicitly aims to produce both social capital as well as financial gain through its commercial activities. Known as a social enterprise, this type of business markets products or services that directly and innovatively address a social need in some way, using sound business principles, and equal priority is given to both social value creation as well as profit generation in the enterprise's mission (Deraedt, 2009; Urban, 2008; Weerawardena and Mort, 2006). This balance between social and economic objectives would enable an urban agriculture enterprise to make a positive contribution to community development while generating enough income to sustain itself and expand its activities. A social enterprise may also provide a link between the local informal economy and the wider formal economy as a result of its unique position in the community (Fonteneau and Develtere, 2009). This is particularly relevant given the size and scope of the informal economy in developing country urban areas (Hobson, 2011) and given that many people engage in urban agriculture enterprise activities within the informal arena.

A vegetable box scheme is a form of direct agricultural market typically characterized by short links between food production and its proximal consumption through the sale of locally-grown organic produce directly to consumers on a regular subscription basis (Haldy, 2004). In the context of development-oriented urban agriculture, vegetable box schemes operated via a social enterprise business model could represent a viable way to expand urban agriculture's socioeconomic impact by engaging low-income farmers in marginalised urban communities to grow food crops and providing them with a suitable local market for their agricultural products.

Research on vegetable box schemes is limited to developed country settings, with most studies conducted on schemes in the United States, Europe, Asia and Australia (Brown et al., 2009; Haldy,

2004; Torjusen et al., 2008). Results on consumer profiles and motivations, as well as opportunities and limitations related to box scheme enterprise development, generalise only in relation to the global North. In an African context, we know very little about the market for vegetable box schemes and whether they represent a viable social and economic development strategy.

A few studies have been undertaken on such schemes in South Africa, but research has been restricted to qualitative descriptions of schemes without attention to enterprise models, market-related issues of demand, farmers' production capacity or measurement of the real social and economic impact of urban agriculture. This study aims to address the gap in the literature by presenting a pilot investigation into vegetable box schemes in Cape Town. The research explores:

- Who are vegetable box consumers and how does the box fit into household food expenditure?
- What does an 'ideal' vegetable box look like?
- Can a social enterprise model compete with other box scheme business models?
- What are some of the constraints on success faced by low-income urban farmers?

The answers to these questions will help establish whether there is sufficient demand for vegetable boxes in Cape Town and how this market could be grown to expand the associated socioeconomic benefits, as well as provide some preliminary insights into planning criteria for vegetable box scheme development programmes.

2. BACKGROUND ON VEGETABLE BOX SCHEMES

In this research, 'vegetable box schemes' refer to a specific production-market value chain in which a variety of fresh vegetable, fruits and herbs are sold direct to the public through an organised intermediary. Vegetable box are typically packaged in wooden or plastic crates, or alternatively paper or plastic bags, which are delivered to convenient distribution points for customer pick-up on a weekly basis. A vegetable box scheme is a simple direct marketing concept that involves a modest range of produce and a minimum of post-harvest packaging, which lends itself to resource-scarce but organised and market-oriented farmers (Florchinger et al., 2007) and helps them to capture a greater portion of the value of their food products (Dubbeling et al., 2010).

Given the spatial and logistical constraints on growing large volumes of food in an urban setting, selling to traditional retail markets is unrealistic for many urban farmers, which makes vegetable box schemes a suitably-sized vehicle for marketing the amount of vegetables farmers are capable of producing. Another meaningful advantage for farmers, especially during the early stages of participation, is box schemes' flexibility in dealing with crop failures, proper timing of harvests and sorting out issues of quality (Hoekstra & Small, 2010) since the composition of most boxes varies with each delivery and customers are generally prepared to accept that the product they receive may change from week to week. In this way farmers are able to fine-tune their production skills without negatively impacting consumer satisfaction.

Box schemes also offer farmers a sense of security in participation as a result of the low levels of risk, regularity of cash income and protection against fluctuations in market prices and seasonality (Bolwig et al., 2010; Hoekstra & Small, 2010). Access to alternative markets is also a distinct advantage in that consumers who prioritise local, organic produce tend to be more affluent and therefore willing to pay a higher premium for these products than those consumers in farmers' immediate communities (Bolwig et al., 2010; Brown et al., 2009). For disadvantaged urban farmers, vegetable box schemes represent relatively steady cash income, employment and skills-building opportunities and valuable market access otherwise unavailable to them, all within a context-appropriate product that they are capable of producing.

For consumers, vegetable boxes provide fresh, organic produce at more affordable prices than those generally found in retail markets. Emerging niche organic markets usually mean limited retail availability and higher retail prices for consumers who prefer organic foods (Haldy, 2004), so organic box schemes can offer greater access to a less expensive product. Where concerns about the origins of food and ecologically responsible food choices are relevant, vegetable boxes are "expressions of proximity" that offer consumers a sense of commitment and contribution to their local community and environment (Hinrichs, 2000). This preference towards locality is anticipated to continue growing as rising oil prices mean higher long-distance transport costs, which in turn contribute to higher food prices (Dubbeling et al., 2010). Consumers are increasingly willing to choose food products that are produced locally in alternative markets, both out of an individual commitment to personal health and the environment, and because of competitive prices for equivalent or superior quality products than those available in retail establishments. The community dimension of box schemes is also salient in consumers' motivations as they develop a connection to other actors in the local food system (Torjusen et al., 2008), often a welcome alternative to the impersonality of retail supermarkets.

For city planners and development practitioners, vegetable box schemes form part of a local food system, and offer all of the ecological benefits typically associated with urban agriculture: contribution to improved land management and biodiversity; reduction of cities' carbon footprints; recycling of organic wastes where composting and greywater usage are practiced. Box schemes present cities with an opportunity to develop small business enterprises that can create jobs for the unemployed, through growing food crops and participating in the logistics of packing and distribution, as well as through other food production activities, such as bottling preserves or raising chickens for eggs to sell in boxes alongside vegetables.

From a social development perspective, vegetable box schemes offer a unique opportunity to promote a sense of connection through the commonly-held medium of food. Purchasing and consuming food is an economic activity embedded in complex social and cultural values; as a type of direct agricultural market, box schemes require people to "congregate and associate" (Hinrichs, 2000) and present opportunities for interaction and knowledge exchange around our shared identity as eaters. Where communication and participation between producers and consumers is an active pursuit of the business, box schemes have been shown to have an influence on consumers' attitudes towards their community, promoting mutual understanding and social empathy for others in the food system, as well as having a measureable impact on household food consumption habits (Torjusen et al., 2008). By participating in a vegetable box scheme, consumers are not only opening their households to an alternative food market, they are also inviting a relationship between the

growers and their own families. When this opportunity for fostering social connections is recognized – especially in contexts where social divisions are persistent and urban segregation inhibits contact – box schemes could be a vehicle for creating a more cohesive urban community. While this potential is not explored further in this study, it poses a compelling research question for development-oriented urban agriculture in South Africa.

3. METHODS

Out of twelve vegetable box schemes identified in the Cape Town metropolitan area in February 2012, three were selected for this study. The schemes included met the criteria of having been an established business for at least three years, having a consistent weekly customer base of at least 100 customers, selling boxes composed of mostly organic products and operating with some kind of ecologically or socially “ethical” mission. In pursuit of a preliminary comparison between development-oriented and for-profit enterprises, the schemes were chosen based on their explicit business models: one traditional for-profit scheme, one co-operative scheme and one social enterprise scheme. The three schemes chosen for the study are herein identified by name with permission. Each scheme’s management was interviewed using a brief structured questionnaire that covered the basic aspects of the business. Eleven questions in total included the scheme’s mission, ownership structure, staff, start-up support, marketing, source of product, schedule of operations, capital expenses and financing.

Current subscribers to each of the three vegetable box schemes were surveyed via an anonymous, self-selecting questionnaire. The survey was available in an online format at the recommendation of box scheme managers for greater access to and convenience of respondents and in consideration of the logistical challenges of administering paper surveys at a multitude of box distribution sites. A link to the survey was distributed by each box scheme’s management to their respective mailing lists with a brief introduction to the study and an invitation to participate. Data was collected from April to May 2012. The nature of the electronic survey means that individual responses are anonymous within each scheme.

The survey produced a sample size of 354 observations, the overwhelming majority of which were complete even on the income question. Based on the managements’ estimates of the number of subscribers in each scheme, response rates of 45%, 84% and 33% were calculated for Harvest of Hope, Wild Organic Foods and Ethical Co-op respectively. There were an additional ten responses that reported participation in multiple box schemes and thirteen responses that did not identify their scheme. These two groups were combined to form a fourth category alongside the three identified schemes.

The sample carries the inherent flaw of not including responses from households which are not sufficiently satisfied with vegetable box scheme offerings to participate in them, as well as people who do not know about them. This is addressed to some extent in section 4.2, which investigates the effect of the length of subscription history on spending patterns. Consequently the results presented here are anecdotal and cannot be used to project city-wide demand for the produce of urban agriculture; rather the data serve to shed light on the current successes, failures and growth potential of existing box schemes in Cape Town.

Respondents were asked about their household expenditures on food, including the cost of the vegetable box, how much additional money is spent each week on fresh produce that is not part of the box, and how much is spent on groceries overall in an average month. In total the questionnaire contained fifteen multiple choice questions, seven open-ended questions and two questions involving Likert scale rankings. Sensitivity to income questions and the low response rates typically associated with open-ended formulations served as the motivation for using structured income intervals instead. Categorical income data were converted to a continuous variable by taking midpoint estimates for each category. Since vegetable box schemes usually have a weekly delivery interval, box expenditure data were collected per week; however, since most households operate according to a monthly budget, it made sense to collect data on total grocery expenditure per month. Inspection of the data reveals that most respondents coped well with this duality.

Weekly vegetable box expenditures were converted to a monthly figure by multiplying each observation by 4.2. To estimate expenditure on additional fresh produce purchased from supermarkets and farmers' markets, a midpoint of the expenditure category was calculated. Expenditure on the box was added to estimated additional expenditure to calculate an estimated total monthly expenditure on fresh produce. The share of the box in total fresh produce expenditure and the share of the box in total grocery expenditure were also calculated. For the shares missing observations reduced the samples sizes to $n = 309$ for share of all fresh produce and $n=312$ for share of groceries.

In a preliminary effort to explore producers' successes and constraints, this study also pursued two brief case studies with practicing urban farmers. Permission to conduct research involving human subjects was obtained the University of Cape Town Faculty of Humanities Ethics Committee, and appropriate consent forms were employed. Farmers were deemed appropriate respondents if they were low-income (<R6,000 per month) Cape Town residents who were actively practicing food gardening in a marginalised community and selling at least a portion of their produce through an intermediary-facilitated direct agricultural market. Farmers were initially approached through the authors' existing relationship with two urban agriculture-focused NGOs in Cape Town, and respondents were offered a small token of appreciation for their participation .

The case studies were structured around a researcher-administered questionnaire consisting of 98 fill-in, multiple-choice, scaling, ranking and open-ended questions. The questionnaire asked farmers about their motivations for participating in urban agriculture; their actual and perceived strengths and constraints in food gardening; the role of support services in farmers' gardening experiences; and the possibility of dependency issues created by box schemes when it comes to market access and integration. Over the course of multiple visits to garden sites, the researcher recorded farmers' responses and field notes on the questionnaire instrument; responses to the small number of open-ended questions were recorded through emphasis on keywords of the issues addressed, and in some cases follow-up conversations were digitally recorded for later transcription. In respect of constraints on space and scope, the complete case studies are not presented in full in this paper; rather, the authors briefly highlight key points elicited from analysis of the farmers' questionnaires in relation to the aims of the study.

The paper employs mixed methods. In sections 4.2 and 4.3, differences across schemes are explored using descriptive statistics and simple statistical tests (χ^2 and single variable ANOVA-tests)

conducted in Stata. Differences were considered statistically significant at the 5% level. Four dimensions of product satisfaction (price, quantity, quality, variety) were each measured on a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. For each of these responses, the four individual measures of satisfaction were given a number value from 1 to 5 based on the Likert scale, all of which were then added together into an index of overall satisfaction, ranking from 4 = least satisfied to 20 = most satisfied. The overall satisfaction index is compared to the responses to questions probing willingness to pay for quality and variety. In section 4.4, the approach is qualitative. The results of an open-ended question about consumer purchasing habits have been counted by the number of mentions of specific items purchased since individual responses identified multiple vegetables and fruits. Open-ended responses for consumer recommendations for improved boxes have been coded thematically.

4. RESULTS

The top reasons participants reported overall for buying from their respective box scheme were 1) its organic nature (50%), 2) its connection to a social programme (24%), 3) its local character (6%) and 4) the quality of the product (6%). However, when motivations were examined across schemes, buying organic was identified as most important only for Ethical Co-op's and Wild Organic Foods' consumers, while Harvest of Hope's customers prioritised its connection to a social programme over the box being organic; this suggests that linking the box scheme to a social mission may offer an effective marketing strategy that could enhance the organic attraction for certain consumers. When asked about where else they regularly purchase produce, most respondents identified two of South Africa's largest retail supermarket chains (Woolworth's and Pick and Pay) as the main places they shop for food, with a smaller number mentioning farmer's markets. In most cases, consumers were introduced to their respective box scheme either through word of mouth or online.

4.1 DESCRIPTIONS OF THE BUSINESS MODELS

Harvest of Hope has been operating since 2008 and currently has a subscriber base of approximately 350 customers. Harvest of Hope's mission focuses on supporting livelihoods and alleviating poverty (www.harvestofhope.co.za) and its boxes contain organic¹ produce grown in some 20 to 25 gardens in low-income communities on the Cape Flats, as well as some additional produce grown on about four small commercial farms in other areas of peri-urban Cape Town. Harvest of Hope is the business unit of Abalimi Bezekhaya, a registered nonprofit organisation that provides urban agriculture training programmes for food security and income generation. The scheme creates job opportunities for farmers who successfully complete the programme and demonstrate the technical ability to grow produce at an acceptable volume and quality to suit the scheme's needs.

Harvest of Hope was initially developed with the paid guidance of a professional business consultancy who designed the programme and made recommendations for its implementation, and initial capital for the packing shed, vehicles, produce crates and a commercial scale was sourced from Abalimi's extensive network of funders. Harvest of Hope is staffed by one full-time marketing

¹ Because the cost for organic certification is prohibitively expensive for Harvest of Hope's low-income farmers, the produce sourced from these communities is offered as organic in practice and the scheme says that it monitors farmers' growing techniques on a regular basis to insure that organic methods are being used.

position (the only staff member with a business background) and a team of part-time staff made up of field workers, packers and drivers, the number of which varies from about six to ten people. The scheme is further supported by Abalimi's field team manager, production coordinator and management board.

Harvest of Hope offers two differently-sized box options distributed to collection points on a weekly basis to customers who subscribe in advance. Target consumers are explicitly middle class, socially responsible and well-educated; many of their collection points are located at upmarket private schools and universities in Cape Town. Marketing is primarily through word of mouth and social media visibility, as well as through weekly public tours of the gardens and other public relations activities connected to the nonprofit. The logistics of Harvest of Hope's schedule of operations are all handled by Abalimi's staff, including coordinating farmers' weekly pick lists, transporting produce to the packing shed, packing boxes and delivering them to collection points. At present, Abalimi is working towards training more farmers and increasing Harvest of Hope's production capacity in order to grow the box scheme and create more income earning opportunities for people living in disadvantaged communities in Cape Town. In this study, Harvest of Hope is the example of a social enterprise, and the question pursued is whether it manages to successfully compete with other enterprise models.

Wild Organic Foods is a registered close corporation and for-profit box scheme in operation since 2003 but which has been managed for the past two years by the current owners, who purchased the business in 2010. With an emphasis on "directly supporting local organic farmers²" (www.wildorganics.co.za), Wild Organic Foods has a weekly subscriber base of about 150 customers who order customisable organic vegetable bags online for home or office delivery, or for pickup at collection points. Wild Organic Foods is staffed by three full-time positions (procurement, accounts and customer liason) as well as two part-time packers and two part-time delivery drivers. One of the enterprise's owners has a university-level commerce degree and experience working in the corporate sector, and little start-up support was needed since the current owners purchased a brand, an existing client base, a roster of suppliers and a functional administrative system. Wild Organic Foods broadly targets consumers who buy organic products, without a focus on any other specific characteristics, and they rely solely on word of mouth advertising.

Wild Organic Foods offers small, standard and double sized bags, and optional products such as dairy, bread, eggs, meats and bottled goods can be added to bags or purchased in their retail shop. The staff process individually-emailed customer orders, translate those to suppliers and pick up produce from farmers, where it is hand-packed in their commercial offices by all staff and either distributed to collection points or delivered to customers' locations. Wild Organic Foods' additional product offerings and option for customisation represent a potential advantage over a traditional vegetable box scheme, and its owners' for-profit motives may be in line with a level of market knowledge and/or business management capability above that of other organisational models.

Ethical Co-op is a cooperative enterprise in operation since 2005, with a current customer base of approximately 150 customers. It was originally established by ten members, of whom only one

² Wild Organic Foods says that 90% of its suppliers are certified organic by a local agency. Those that lack certification are visited by the scheme's staff to confirm organic production techniques.

remains; its mission is to support small local farmers, limit product packaging and offer only “ethical” products which are “organic in spirit”³ (www.ethical.org.za). Ethical Co-op was started among friends with a common desire for organic produce and has grown slowly through the extended network of its original members. The scheme’s current manager has a background in information technology, which is why the enterprise initially opted to make the scheme a wholly internet-based service; the remaining staff consist of a full-time customer liason, a full-time buyer and six part-time warehouse workers. Ethical Co-op targets consumers who want to buy organic and who are comfortable doing so online, and marketing is primarily through word of mouth, social media and a key advert with a local ‘green’ business.

Ethical Co-op’s website offers customisable organic vegetable boxes, the option of adding a wide variety of other grocery and non-food products and complete online ordering capacity. Distribution is via weekly home or office delivery (using either the scheme’s vehicle or a local courier service) or by customer pickup at collection points. Most of the scheme’s suppliers package their produce in advance and deliver it to the scheme’s warehouse, where all staff pack boxes each week. Ethical Co-op’s convenient online ordering and broad spectrum of both food and non-food product offerings might be a clear advantage over other schemes.

4.2 DIMENSIONS OF CONSUMER EXPENDITURE ON VEGETABLE BOXES

In Section 4.2 subscribers are compared across schemes, in particular with respect to expenditure on the vegetable box and to the importance of the box in overall grocery expenditure. Table 1 provides the data to answer the question of whether vegetable box schemes capture a significant portion of household expenditure on fresh produce. When assessing the importance of vegetable box schemes, one cannot rely on aggregate statistics of the volume of produce sold through these schemes, because no representative data exists and in any case it is unlikely to be more than a few percent. But if one rather asks what proportion of a household’s grocery budget or expenditure on fresh produce goes towards a box scheme, one can judge how important these schemes are for subscribers.

Respondents’ average household size varies significantly across schemes ($F_{3, 350} = 2.64, p = 0.049$), from 2.61 persons per household for Wild Organic Foods to 3.03 for Harvest of Hope. Harvest of Hope is the outlier; if it is dropped, household size is no longer statistically significantly different across the schemes ($F_{2, 195} = 0.46, p = 0.634$). The authors suspect the difference in household size is explained by the difference in distribution strategy followed by the different schemes. With their emphasis on on-line ordering, Wild Organic Foods and Ethical Co-op say they cater more to young professionals, who tend to be single or childless couples, while Harvest of Hope attracts a larger proportion of young families because it uses schools as its main distribution points.

³ Ethical Co-op’s offerings are certified organic whenever possible, but they acknowledge that some of their smaller suppliers cannot afford the financial obstacle of certification even though they practice organic farming.

Table 1: Consumer profile by vegetable box scheme

Characteristic	Box Scheme				Significance
	Ethical Co-op	Harvest of Hope	Wild Organic Foods	Multiple / Unidentified	
Number of Observations	49	156	126	23	
Household Size	2.63	3.03	2.61	2.87	F(3, 350)=2.64 p = 0.049
Income Distribution (R/month)					
5,000 – R10,000	30	7	10	14	
10,000 – R15,000	14	12	17	14	
15,000 – R20,000	30	22	17	19	
20,000 – R30,000	14	16	21	29	
30,000 – R40,000	11	39	33	19	chi ² (15)=31.94
> 40,000	2	4	2	5	p = 0.007
	100	100	100	100	
Total Grocery Expenditure (R/month)					
< 1,000	0	9	3	4	
1,000 – R2,000	29	22	24	13	
2,000 – R3,000	31	22	39	39	
3,000 – R4,000	25	22	18	17	
5,000 – R7,000	15	17	13	22	chi ² (15)=24.34
> 7,000	0	8	3	4	p = 0.060
	100	100	100	100	
Retail Market Fresh Produce Expenditure (R/month)					
50 – R100	43	55	58	41	
100 – R250	30	32	31	41	
250 – R500	26	11	9	18	chi ² (9)=12.22
> 250	0	1	2	0	p = 0.201
	100	100	100	100	
Total Fresh Produce Expenditure (R/month)	1368	978	1334	1450	F(3,350)=10.90 p = 0.000
Cost of Vegetable Box (R/month)	628	375	721	737	F(3,314)=35.42 p = 0.000
Box as % of Total Groceries	25	16	29	26	F(3,308)=17.32 p = 0.000
Box as % of Total Fresh Produce	46	43	58	52	F(3,305)=22.01 p = 0.000

Income distribution varies significantly across schemes ($\chi^2_{15} = 31.94$, $p = 0.007$), with Ethical Co-op attracting a significantly larger proportion of subscribers from the bracket R5,000 to R10,000 per month than the other schemes. An ANOVA test across the remaining schemes show no significant difference in income distribution amongst Harvest of Hope, Wild Organic Foods and the unidentified category ($\chi^2_{10} = 8.7432$, $p = 0.557$). Differences in income distribution do not translate directly into differences in the distribution of total grocery expenditure at the 5% level ($\chi^2_{15} = 24.34$, $p = 0.060$). For example, Ethical Co-op, which included the largest proportion of subscribers from the lowest income bracket, have no subscribers in the lowest grocery expenditure bracket. As with household size, Harvest of Hope is the outlier when it comes to grocery expenditure. Surprisingly, on monthly grocery expenditure Harvest of Hope has both the highest proportion of subscribers in the lowest grocery expenditure bracket and the highest proportion of subscribers in the highest expenditure bracket. It is assumed that household size explains the distribution at the high end of grocery expenditure. An ANOVA test conducted over the remaining three schemes reveal no significant difference in grocery expenditure across them when Harvest of Hope subscribers are dropped ($\chi^2_{10} = 7.74$, $p = 0.654$).

Neither grocery expenditure pattern nor income distribution matter for expenditure on fresh produce purchased from outlets other than the vegetable box schemes ($\chi^2_9 = 12.22$, $p = 0.201$). Since the difference in expenditure on other fresh produce is not statistically significant across schemes one cannot say anything definitive about substitution between the box and other sources of vegetables. However, this is not to say that there is no difference in expenditure on the box itself. Average expenditure varies from R375 per month for Harvest of Hope to R737 per month for subscribers to unidentified schemes, a difference which is highly statistically significant ($F_{3, 314} = 35.42$, $p = 0.000$). Harvest of Hope being organic clearly does not make up for its more modest range of product offerings. By adding customisation, convenient on-line ordering and/or a variety of value-added products, a social enterprise like Harvest of Hope will be better able to capture a larger share of consumer expenditure.

Vegetable box schemes capture a significant portion of their subscribers' expenditure on fresh produce, as well as on total groceries. The cost of the box as a percentage of expenditure on all fresh produce varies significantly across schemes ($F_{3, 305} = 22.01$, $p = 0.000$), from 43% for Harvest of Hope to 58% for Wild Organic Foods. Harvest of Hope is the outlier; excluding it produces an ANOVA result which shows that the box as share of expenditure on all fresh produce is no longer statistically significantly different across schemes ($F_{2, 169} = 0.29$, $p = 0.752$). The cost of the box as a percentage of all grocery expenditure follows the same pattern. It ranges from 16% for Harvest of Hope to 29% for Wild Organic Foods. The difference is statistically significant ($F_{3, 308} = 17.32$, $p = 0.000$). The ability of the box to capture a substantial portion of consumer grocery expenditure is one of the most important results of the survey presented here. Even a social enterprise model offering a modest range of produce is able to capture almost half of its subscribers' fresh produce expenditure, and by adding variety to the product, this model's share can be raised to almost 60% of fresh produce expenditure.

To investigate what in general determines box schemes' ability to capture a share of expenditure on fresh produce, data have been pooled for all three schemes. It is hypothesised that income, level of expenditure on groceries and loyalty (proxied by the duration of scheme membership) are the main determinants of the share of fresh produce expenditure a household is willing to commit to a box

scheme. Of these three factors, the effect of loyalty is easiest to predict: as people become more familiar with a scheme, they will rely on it more, buying more from the scheme and less from supermarkets, assuming that consumers' continued participation in the scheme over time is indicative of their needs being satisfactorily met. Richer people arguably have more expensive tastes, which mean that they will buy more luxuries and less fresh produce, but it does not necessarily follow that the rich would prefer to buy their fresh produce from supermarkets or from box schemes. If one finds a negative relationship with income or total grocery expenditure, it suggests that vegetable box schemes are less able to provide exotic fresh produce than other outlets. For the purpose of the experiment, low, medium and high income, total grocery expenditure and tenure categories were constructed. See the footnote to Table 2 for definitions for each of these.

Table 2: Cost of vegetable box as share of expenditure on fresh produce (data pooled for all schemes)

Consumer Attribute	Share of Fresh Produce			Significance
	Low ¹	Medium ²	High ³	
Income	54%	51%	45%	$F_{2, 233}=4.56$ $p = 0.011$
Grocery Expenditure	54%	49%	44%	$F_{2, 301}=6.82$ $p = 0.001$
Tenure	49%	50%	50%	$F_{2, 306}=0.20$ $p = 0.820$

¹ **Low:** income = < R15,000/month; grocery expenses = <R2,000/month; tenure = < 6 months

² **Medium:** income = R15,000 to R30,000/ month; grocery expenses R2,000 to R4,000/ month; tenure = 6 – 24 months

³ **High:** Income = > R30,000/ month; grocery expenses => R4,000/ month; tenure => 24 months

The income dynamic is as hypothesised. Members of the low income or grocery expenditure group (income <R15,000 per month, groceries <R2,000) get more than half of their fresh produce from vegetable box schemes. As income and grocery expenditure rise, the share captured by box falls to 45% and 44% respectively. In both cases the relationship is statistically significant (see table 2). Once again this result is consistent with the idea that variety is important for keeping more affluent consumers interested in vegetable box offerings. Surprisingly no relationship was found between tenure and produce expenditure ($F_{2, 306} = 0.20$, $p = 0.820$). The box scheme captures half of fresh

produce expenditure regardless of how long a given subscriber has belonged to it. It should be noted that the three categories compared in Table 2 were arbitrarily constructed and that choosing the wrong cut-offs might influence the results presented here. A more robust approach would be to develop a multivariate regression model in which continuous or categorical variables are brought together to tease out significant relationships and interactions, but such a model lies outside the scope of the current paper.

4.3 DIMENSIONS OF CONSUMER SATISFACTION WITH VEGETABLE BOXES

Respondents were asked to rank agreement on a Likert scale with statements about their satisfaction with four characteristics of their vegetable boxes, namely variety of box contents, quality of box contents, amount of produce in the box and price. Table 3 shows none of these satisfaction measures to vary significantly by scheme at the 5% significance level, which indicates that all three box scheme models are delivering their product equally well. This lack of statistical significance also means that it is acceptable to pool the data for further analysis.

Table 3: Self-reported satisfaction by box scheme and by satisfaction criteria

Attribute	Likert Scale Level	Box Scheme				Significance
		Ethical Co-op	Harvest of Hope	Wild Organic Foods	Multiple/ Unidentified	
Price	Strongly Disagree	0	0	1	0	$\chi^2(12)=19.864$ p = 0.070
	Disagree	2	3	11	14	
	Neutral	0	1	2	5	
	Agree	52	54	49	33	
	Strongly Agree	46	43	37	48	
		100%	100%	100%	100%	
Volume	Strongly Disagree	2	0	0	0	$\chi^2(12)=18.332$ p = 0.106
	Disagree	6	8	4	5	
	Neutral	2	2	2	5	
	Agree	57	51	61	57	
	Strongly Agree	30	39	32	33	
		100%	100%	100%	100%	
Quality	Strongly Disagree	0	0	0	0	$\chi^2(9)=11.329$ p = 0.254
	Disagree	6	6	6	14	
	Neutral	0	1	2	0	
	Agree	63	48	58	43	
	Strongly Agree	31	46	34	43	
		100%	100%	100%	100%	
Variety	Strongly Disagree	0	3	0	0	$\chi^2(12)=17.714$ p = 0.125
	Disagree	13	23	10	10	
	Neutral	2	1	2	5	
	Agree	54	53	61	67	
	Strongly Agree	30	21	27	19	
		100%	100%	100%	100%	

When the schemes are pooled (Table 4), it is clear that vegetable box schemes generally produce high levels of consumer satisfaction regardless of the dimension of satisfaction investigated. However, consumers report less satisfaction with variety and quality, than with price of and volume in the box. Over twice as many respondents disagreed that the variety of box contents was satisfactory (16%), as compared to only 6% of consumers reporting the same level of dissatisfaction with the other attributes. Furthermore, only 23% of consumers strongly agreed that vegetable box variety was good, which is substantially lower than the proportion of respondents who strongly agreed that the price, volume and quality of their box was satisfactory. It is clear that addressing consumers' concerns about variety is critical to maintaining and increasing levels of satisfaction.

Table 4: Self-reported satisfaction by satisfaction attribute for the pooled sample (n=354)

Likert Scale Level	Product Attribute				Significance
	Price	Volume	Quality	Variety	
Missing	1	2	2	2	
Strongly Disagree	0	1	0	1	
Disagree	6	6	6	16	
Neutral	1	2	1	2	
Agree	50	55	52	56	
Strongly Agree	41	34	39	23	F (11, 332) = 12.57
	100%	100%	100%	100%	p = 0.000

The logical next step is to determine willingness to pay for more variety, compared to any of the other attributes. Table 5 compares the data for quality and variety. It relates the percentage of respondents willing to pay more and the stated amount to the level of overall consumer satisfaction. Data with respect to improved quality are listed in columns two to four. Data on the stated effect of improved variety appear in columns five to seven.

Table 5: Willingness to pay (wtp) more for improved quality and variety by level of overall satisfaction

Consumer satisfaction index	Improved quality			Improved variety		
	% wtp more	amount wtp (R)	% of box cost	% wtp more	amount wtp (R)	% of box cost
Least satisfied <12	42	16	15	61	17	17
13 – 14	30	21	17	50	21	19
15 – 16	12	19	14	28	18	15
17 – 18	15	21	17	32	19	19
Most satisfied 19 – 20	–	n.a.	n.a.	25	19	19

One expects that the more satisfied a person is to begin with, the less likely he or she will be to pay more for an improved box. This expectation is borne out by the data on willingness to pay for additional quality. Respondents with an overall satisfaction index value of 19 or 20 are not willing to pay anything more for quality. All the others are willing to pay around 16% they are currently paying to see the quality of the box improving. For variety, everyone is willing to pay more, regardless of their current consumer satisfaction index. The stated additional willingness to pay for more variety is in the order of 19% of the current cost of the box. This suggests that consumers prioritise improvements in variety over those in quality, even when they are very satisfied with their box overall. Furthermore, the fact that consumers willingly place a premium on improved variety represents an opportunity for box schemes to potentially increase profits while boosting consumer satisfaction if they successfully address the issue.

4.4 CONSUMERS' FRESH PRODUCE PURCHASING HABITS AND RECOMMENDATIONS FOR IMPROVED BOXES

Consumers were asked to identify what other types of fresh produce they buy on a regular basis in addition to the contents of their vegetable boxes. Responses offer some insight as to consumption habits, as well as guidance about additional produce that could potentially be included in consumers' boxes when established demand and the ability for such crops to be grown in the Western Cape are considered. Table 6 summarises the items consumers most frequently reported as part of their regular fresh produce purchases. Multiple responses were recorded.

Table 6: Most reported regular non-box fresh produce purchases as proportions of total responses (n = 962 multiple responses)

Fruits ⁴		Salad Vegetables		Staple Vegetables		Other Vegetables	
Berries	9%	Tomatoes	6%	Potatoes	5%	Broccoli	4%
Apples	7%	Cucumbers	5%	Onions	5%	Mushrooms ⁵	4%
Avocados ⁶	4%	Lettuces	5%			Garlic	3%
Stonefruits	3%					Red/yellow bell peppers	2%

Additional purchases were grouped into fruits, salad vegetables, staple vegetables and other vegetables. Within the category fruits, consumers buy berries, apples, bananas and stone fruit in addition to what they get in their boxes. In the category salad vegetables, the three most common additional purchases are tomatoes, cucumbers and lettuces. The boxes do not provide enough staple vegetables, as consumers buy additional potatoes and onions; the other vegetables mentioned most frequently were broccoli, mushrooms, garlic and red and yellow bell peppers.

In response to an open-ended question that solicited recommendations for better vegetable boxes, 33% of respondents expressed a desire for some level of customisation of their box, while 17% identified variety as something to be improved upon. A further 12% each noted quality and the need for fruits to be included. The quotes that follow serve to illustrate the motivations behind consumers' recommendations:

"The single biggest reason I purchase from Wild [Organic Foods] is that they are flexible to meet my needs because there are certain things I don't like to have in my box. I would consider switching if other services offered customisation."

"It would be nice to have some way of customising your own veg box so that if there are some vegetables you are not fond of, you can replace them."

"We like the social upliftment aspect, so originally wanted to go with Harvest of Hope, but they only do veggies (not fruit). We also looked at Ethical Co-op, but Wild [Organic Foods] is the only box where you can swap in/out any veggies that you don't like/would prefer. This is what ultimately sold us on Wild [Organic Foods] and the reason that we still get their box."

"...A greater variety from one week to the next. Often the veg remains the same - understandable because that's what is in season, but perhaps there is room for creativity."

"The veg tend to be repetitive and often the outer layers are already dodgy or the quality is low."

⁴ While bananas were mentioned in 7% of responses, they were omitted from the Fruits category because they cannot be grown in the Western Cape.

⁵ Mushrooms could be grown in the Western Cape with appropriate technical investment.

⁶ Avocados are not currently grown commercially in the Western Cape, but they are grown in home gardens.

“I would prefer a slightly higher level of preparation of veg, eg washing, excess leaves removed etc.”

“I know it's a veg box but it would be great to be able to get all fruit and veg in one box.”

“Having fruit would be great and if it added to the existing veggies then I would be happy to pay more.”

Dealing with consumers' individual preferences for flexibility and customisation in the variety of produce offered is a challenge that many box schemes face (Brown et al., 2009; Hoekstra and Small, 2010), and the anecdotal data shows that this issue applies to consumers in Cape Town as well. Consistency in delivering a competitive level of quality is also important, and it appears that including fruit in box contents would meaningfully contribute to meeting consumers' needs.

5. PRODUCERS' CAPACITY & CONSTRAINTS

In considering vegetable box schemes as viable urban agriculture social enterprises, attention must be given not only to consumer demand but also to producers' capacity. In the Western Cape, there are several programmes that currently provide marginalised communities with training in food gardening skills aimed at improving participants' household food security and creating income earning opportunities. In this respect, it seems that the Western Cape Department of Agriculture, and nonprofit organisations such as Abalimi Bezakhaya and Soil for Life, are doing a fairly good job of equipping new urban farmers with the technical skills necessary to grow food.

However, once farmers leave a training course, they face a number of persistent constraints on their ability to practice urban agriculture, especially for those seeking to earn an income. Current literature highlights as obstacles: the lack of durable access to land tenure, inadequate access to urban markets, lack of access to credit for initial and ongoing purchase of tools and inputs, low skill levels in basic business administration and management, lack of access to affordable water resources, the vulnerability of urban gardens to theft, trampling, fire and floods, and the challenge of securing meaningful commitment from participants, especially in terms of the length of time required to see results when urgent household needs exist (Battersby-Lennard, 2011; Haysom, 2010; May & Rogerson, 1995; Phiri, 2008; RUAFA, 2010; Walker, 2011).

In addition to these overarching challenges, which affect a large majority of urban farmers trying to earn an income from their gardens, there are often context-specific limitations on farmers' success that may be hidden from superficial examination. The farmer questionnaires conducted in conjunction with this study sought answers to the following questions:

- What are some of the factors that have contributed to the success of urban farmers earning a living from their gardens?
- Why are even exceptional urban farmers still struggling to be successful, e.g. move out of poverty?

The two farmers who participated were Sarah*, a 45-year-old coloured woman, married and living with six children in Lavender Hill, and Charles*, a single 32-year-old black man living and gardening

in Khayelitsha (*names were changed to protect farmers' privacy). Each graduated from a different NPO training programme and are now growing food for household consumption and commercial sale. Both are what might be called 'exceptional' farmers in that they have displayed not only the consistent technical ability to produce quality organic vegetables, but they have also demonstrated the drive, commitment and and entrepreneurial initiative required to develop a small business. These characteristics alone have contributed a great deal to their success, as has the ongoing support from the NPOs who provided their training.

The difference here, however, is in the duration and type of support provided. After an initial year-long programme followed by regular meaningful skills-building workshops in the past two years, Sarah's business has diversified from vegetable sales into seedling and compost sales, as well as leading paid trainings for other gardeners and beginning to keep her own books. Charles, on the other hand, has received only five days of training and a minimum of ongoing support; his income at this point is completely reliant on the box scheme and he still has not grasped even basic skills of tracking income, expenses or production.

Both farmers report facing the some of the same challenges identified above: access to an adequate amount of land that is located a reasonable distance from their homes; linking to markets to sell their produce independent of the intermediary; and struggling to meet the labour needs of the garden as it grows because of others' inability to committ to waiting weeks or months to see returns. However, each farmer faces obstacles unique to his or her situation. Sarah says that the violence in her community is one of the biggest challenges she faces; there are days when she cannot walk to the garden because of gang-related shootings. Her garden has been broken into four times in the past two years, and Sarah says that although she would love to open a vegetable stall in the community, she is certain that it too would be burglarised. For Sarah, the crime in Lavender Hill has serious implications for her ability to grow her business.

As a young black Rasta, Charles experiences a different challenge – the social stigma that comes with the religion he has chosen. Despite the fact that he and his fellow Rasta farmers are well-organised, active in community upliftment and committed to pursuing every business development opportunity that comes their way, Charles is often dismissed as just another ganja-smoking Rasta by some government officials to whom he has appealed for agricultural support. There has also been conflict between Charles' group of young Rasta farmers and the elderly people with whom they share a plot of land, with the older folks' suspicion of the young men's religious practices, combined with jealousy of their early successes, often leading to disputes in the garden. For Charles, his religious identity is often an obstacle to being perceived as a legitimate farmer worthy of respect and trust.

Even this brief analysis illustrates the importance of close examination of the context in which urban farmers operate, both in understanding how to better meet their needs as they develop their businesses, as well as assessing their capacity as producers in the local urban economy. This is especially vital when developing urban agriculture as a social enterprise where complex issues of poverty and inequality factor in the equation.

6. DISCUSSION & CONCLUSION

This study aimed to understand consumer aspects of the market for vegetable box schemes in Cape Town, and to uncover what opportunities there may be to grow such a market for further enterprise development. The consistency of household spending patterns on fresh produce, combined with the significance of vegetable boxes as part of household expenditures, indicate that there is a viable market for vegetable boxes in Cape Town. Consumers' high levels of satisfaction, and their demonstrated willingness to maintain the box as part of their household consumption habits over time, suggest that the box scheme model is working. Finally, consumers' motivations for participation in box schemes are consistent with a global trend toward preference for socially responsible, locally grown, organic produce (Dubbeling et al., 2010; Florchinger et al., 2007; Haldy, 2004). Over the past three decades, this trend has contributed to the substantial expansion of alternative niche markets for such products in urban areas of highly industrialised countries. Its relatively recent emergence in South Africa represents an opportunity to establish and expand similar markets in urban areas in the global South.

To grow the market for vegetable boxes, the importance of variety to consumers must be addressed. Increasing the variety of products in the boxes also means that there are fewer items consumers will need to purchase elsewhere, potentially saving time. Current literature says that box scheme consumers emphasise convenience as important to their shopping habits (Brown et al., 2009), and anecdotal survey data reflected this in comments about the preference for online ordering, the need for pickup logistics that better suit people's schedules in terms of days of the week, times and locations, and an appreciation for how participating in the box scheme often means less trips to the supermarket.

A balanced variety of staple and salad vegetables, and inclusion of certain specific vegetables such as broccoli and bell peppers requested by a noteworthy proportion of consumers, would better reflect consumers' consumption habits and expressed needs. Many consumers also communicated a desire that a few staple fruits be included in their boxes, such as apples, bananas, avocados, strawberries and grapes. Not all of these can be grown commercially in Cape Town, but collaboration with similar schemes in other parts of the country might make it possible to secure a reliable supply elsewhere. Offering value-added food products, such as bottled jams or dried herbs, and items such as eggs or bread, is an option about which many respondents were enthusiastic. Including such items may further boost consumer satisfaction, as well as present ancillary enterprise opportunities for producers.

In an effort to address the need for some level of customisation, box schemes could create a small selection of box options that allow customers more choice about what they receive each week, for example boxes that specifically emphasise root vegetable or salad preferences. Given that many consumers reported a desire to more closely match the amount of produce in their box to the actual amount of vegetables their families consume, box schemes might also consider offering more than just two standard box size options, perhaps creating a box for single consumers as well as small, medium and large size boxes. However, one must take into careful consideration the logistical and technical constraints under which box schemes and farmers are operating when weighing the feasibility of adopting such consumer-oriented measures.

While the vegetable box scheme model rests on consumers' willingness to forgo a certain amount of choice in what they receive, there must be a balance between serving farmers' capabilities and meeting consumers' needs if satisfaction and tenure are to be maintained (Halady, 2004). Addressing consumers' desire for variety and customisation, and improving the convenience of ordering and distribution, may increase overall consumer satisfaction with their boxes and help mitigate the trade-off in personal preference that consumers make when they participate in box schemes. If this can be achieved, box schemes may be able to leverage consumers' willingness to pay more for a box with which they are happier, which would in turn increase schemes' profits and farmers' incomes.

Comparison of consumer profiles across schemes suggests that all three models are successfully competing for a market share of organic vegetable box customers in Cape Town, and consumers' comparable levels of satisfaction and length of participation across schemes further indicate that all three models are delivering their product effectively. These findings imply that overall a social enterprise model is capable of delivering a successful box scheme, thereby offering development-oriented urban agriculture a potential business model for merging social goals with economic viability. However, there are clear strengths and weaknesses among the schemes that bear mentioning. While Harvest of Hope's social programme is a unique marketing advantage with certain consumers, its lack of any box customisation or convenient online ordering are a clear disadvantage against the other two schemes. The strong business background of Wild Organic Foods' management staff was evident in the scheme's drive for administrative efficiency, strategic growth planning and knowledge of market activity, while Ethical Co-op's slow growth over the past year hints at the need for new tactics to attract more customers. It is evident that in-depth attention to consumer demand, a sound business-oriented approach and a constantly evolving marketing strategy are all key factors; if a social enterprise vegetable box scheme is to be an effective economic development programme, then it must tick all of these boxes.

It is also important to note that development-oriented box schemes are not without problematising challenges. Urban farmers face a host of macro- and micro-level challenges to their success that must be addressed by policymakers and development planners. Box schemes require a high level of organisation to manage logistics and as was the case in this study, often necessitate an intermediary when producers do not possess such skills (Florchinger et al., 2007; Hoekstra and Small, 2010). Attention must also be given to potentially adverse terms of participation, such as power relations between impoverished producers and affluent consumers or dependency upon intermediaries, when attempting to promote market inclusion (Bolwig et al., 2010) in development strategies. Finally, investigating consumer demand for vegetable boxes is only half of the economic equation; understanding the supply side is equally important, and there is a real need for research on the volume of produce urban agriculture contributes to the market.

The study design and methods presented limitations. The use of an online survey instrument restricted respondents' access to only those people who had access to the internet and who possessed the skills to navigate within an online environment. This limitation may have offered some inadvertent benefits, however, in that respondents' ability to take the survey in a place and time of their choosing (most likely in the familiar setting of home or office) may have contributed to their willingness to participate and/or level of openness in responses. The failure to survey respondents who choose not to participate in a box scheme is also a flaw in study methods which

would need to be addressed in order to construct a fuller picture of the fresh produce market in Cape Town.

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