

Current consumer preferences amongst Harvest of Hope subscribers as compared with those of 2012

Urban agriculture is recognised as a solution to poverty and food insecurity. Harvest of Hope, the social enterprise of Abalimi (a Cape Town based urban agriculture civil organisation) markets Abalimi produce in the form of a vegetable box scheme. Following Thom and Conradie's 2012 study, this study used descriptive statistics and one-way Anova tests to investigate consumer satisfaction levels and the relationship between satisfaction and willingness to pay (for both improved quality and variety). The relationship between length of tenure and satisfaction is discussed, as well as the amount consumers are willing to pay for an improved product. The findings reflect that satisfaction has decreased since Thom and Conradie's questionnaire in 2012 and that the relationships between satisfaction and willingness to pay for both quality and variety have changed since Thom and Conradie's 2012 questionnaire.

Introduction

Urban food security poses a major challenge to the developing world, particularly in Sub-Saharan Africa, the fastest urbanizing region in the world (Battersby, 2012). Sub-Saharan Africa faces problems of unemployment and lack of economic growth. Small-scale agriculture is a strategy that generates employment and growth, particularly in developing countries (UNDP, 1996).

In the early 1990s, urban agriculture was recognised internationally as a solution to poverty and food insecurity, with multiple potential benefits. Urban agriculture has been identified as essential to sustainable urbanization and poverty alleviation, as well as beneficial to fostering social empowerment in a post-1994 South Africa (May & Rogerson, 1995).

Another recent global trend is a movement towards alternative quality in food. Health, taste, environmental awareness, product origin and the ethics of production have all become part of consumers' considerations. A vegetable box scheme offers the potential for urban farmers to exploit this trend, despite not being part of the formal retail channels (Biénabe *et al.*, 2011). Urban agricultural schemes are sustainable if implemented in a market that is context-appropriate and viable (i.e. there is demand for organic produce, and it is a possibility for low-income farmers to capitalize on such demand) (Dorward *et al.*, 2003).

Harvest of Hope has developed as the marketing unit of Abalimi, a civil society organization that "empowers the disadvantaged through ecological urban agriculture" (Hoekstra & Small, 2010). Harvest of Hope is a vegetable box scheme that provides a sustainable market for community garden farmers, that extends beyond their own communities (Hoekstra & Small, 2010). As a social enterprise, it is linked positively to environmental conservation, food security, income poverty and socioeconomic development – all current problems facing SA (Reuther & Dewar, 2005).

A key challenge to agricultural producers is to identify the factors that motivate consumer purchases and “determine their loyalty” to a specific product (Harvest of Hope, rather than its competitors) (Hollebeek *et al.*, 2007). Following Thom and Conradie’s 2012 thesis investigating the consumer satisfaction levels of various vegetable box schemes, including Harvest of Hope, we identified the need for a follow up study to evaluate the impact of the implementation of Thom’s recommendations.

Method

Data and Research process

This study collected data from Harvest of Hope consumers and compared this to the data collected by Amy Thom in 2012. Current data was collected using an online questionnaire (Google forms) that we distributed to the Harvest of Hope subscriber email database. The questionnaire was open to subscribers between 11 and 27 March 2015. The questionnaire focused on aspects of Thom and Conradie’s thesis, surveying consumers’ satisfaction levels regarding the price, quantity, quality and variety of the Harvest of Hope vegetable box scheme. We also collected qualitative data about suggested improvements through this survey.

The results from this questionnaire were compared to that of Thom and Conradie’s 2012 study and similarities, differences and trends are discussed using descriptive statistics (comparative statistics and one-way Anova tests). Possible reasoning behind these findings are discussed and relevant literature is used to expand on these results.

1. Likert scale

In an effort to generate comparable statistics, we have tried to keep to Thom and Conradie’s methodology, when investigating satisfaction levels. Like Thom and Conradie’s questionnaire, our questionnaire asked respondents to evaluate their satisfaction using a Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree, for each category (price, quality, quantity and variety).

2. One-way Anova tests:

We used Excel Data Analysis to perform one-way Anova tests to determine whether or not there is a significant relationship between satisfaction levels and willingness to pay. A test was run to investigate the relationship between satisfaction with variety and willingness to pay more for improved variety. A second test was run to investigate this same relationship, but with regards to quality. A third one-way Anova test was run to identify whether or not there is a difference in satisfaction levels of the current subscribers who were subscribers in 2012 and those current subscribers who have only been subscribers post-2012. This was done to identify those subscribers who had experienced the service before and after Thom and Conradie’s recommendations were implemented and to see if they indicated improved satisfaction levels.

Possible constraints

Although we strived to achieve the most accurate results possible, a few constraints have limited this study. We had minimal time to gather data; the consumers’ response rate is relatively low (169 out of approximately 500), and our results are dependent on the accuracy and cooperation of Harvest of Hope subscribers. An increased sample size would provide more accurate results

and a study that compared multiple box schemes could possibly provide more insight into the reasoning behind consumer satisfaction levels.

Results and Discussion

Quantitative

Table 1: Self-Reported satisfaction (%) criteria for 2015 sample (n=169) vs. 2012 sample (n=156)

	Price (%)		Quality (%)		Quantity (%)		Variety (%)	
	2012	2015	2012	2015	2012	2015	2012	2015
Missing	0	0	1	0	1	1	1	1
1 = Strongly Disagree	0	3	0	4	0	2	3	3
2 = Disagree	2	5	5	9	8	10	22	17
3 = Neutral	1	24	1	13	2	18	1	30
4 = Agree	54	40	47	49	50	44	52	31
5 = Strongly Agree	43	28	46	25	39	25	21	18

Adapted from Thom & Conradie, 2012.

As shown in Table 1, the proportion of consumers who are neutral about their satisfaction is notably higher in 2015 than in 2012 across all criteria, (e.g. from 1% for variety in 2012 to 30% in 2015). The proportion of very satisfied consumers is lower, although the change is less extreme than in the 'neutral' group. This shows that members have grown more dissatisfied overall with price, quantity, variety and quality since the study in 2012. Possibly, Harvest of Hope's delivery in terms of quality and variety has worsened over time. This seems unlikely as an emphasis on improving variety was recommended by Thom and Conradie (2012). Alternatively the decreased satisfaction could be due to changes in consumers, either due to the entry of newer consumers who are, on average, less forgiving than the previous members, or as a result of existing members becoming jaded over time and no longer willing to overlook Harvest of Hope's shortfalls for the sake of its social enterprise status.

In 2012, the only criterion any consumer was completely dissatisfied with was variety (3% as opposed to 0% in all criteria). There were more somewhat-dissatisfied-with-variety consumers (22%) than any other criteria. Overall, there seems to be a general negative shift in consumer perception, from 2012 to 2015. This is particularly seen in the marked decrease in most satisfied and satisfied groups, which show a decrease in % in almost all criteria. For example, the proportion of completely satisfied consumers for price dropped from 43% in 2012 to 28% in 2015.

This general decrease is surprising when taking into consideration Thom and Conradie's recommendation for improvements three years ago. Our questionnaire found that only 18% respondents were present at the time of the first study in 2012 (assumed tenure of more than 3 years) while the remaining 82% members in the sample only began their subscription afterwards.

The results of the Anova test in Table 2 indicate that there is no significant relationship between length of tenure (for subscribers of <36 months and for subscribers of >36 months, differentiated by the date Thom and Conradie’s survey was carried out) and the corresponding level of satisfaction. This is interesting as it suggests that the long-term subscribers (>36 months) have not become more satisfied (or at least expressed their increased satisfaction), despite the implementation of Thom and Conradie’s recommendations.

This could highlight one of two things: one, that Harvest of Hope did not adopt the suggested box scheme improvements. This would be understandable considering Harvest of Hope’s budget constraints and the difficulty of improving perceived customer satisfaction. Thom and Conradie’s recommendations for Harvest of Hope were to improve variety (by widening crop variety of Abalimi) and to introduce the customisation of boxes. Thom and Conradie recognises the logistical difficulty of these recommendations, and thus it would not be surprising if Harvest of Hope encountered similar difficulties in implementing the recommendations. An alternative explanation is that consumers continually tend to adjust their standards upward, resulting in lower satisfaction in general. It is unlikely consumers with a tenure of more than 36 months (present at the time of Thom and Conradie’s study) remember their satisfaction ratings from the time of the 2012 study. This means that they are not actually adjusting their satisfaction rating in relation to their past ratings, as they consider this temporal consideration to be irrelevant. This may further skew the data.

Table 2: Tenure and average overall satisfaction (/20)

<i>Tenure</i>	<i>Average Overall Satisfaction (/20)</i>
36 months	14,56
<36 months	15,03
Anova F stat	0,51

In order to further investigate the impact of Thom and Conradie’s recommendations and how satisfaction levels have changed over time, we performed another Anova test. This looked at the relationship between satisfaction levels with quality and willingness to pay (wtp) for improved quality. The same test was run investigating the same relationship, but with regards to variety. The results are displayed below in Table 3, where 0 = not willing to pay and 1 = willing to pay.

Table 3: Mean wtp by satisfaction level for 2015 sample vs. 2012 sample (0: no & 1: yes)

	Quality		Variety	
	2012 n=36	2015 n=66	2012 n=81	2015 n=102
Strongly Disagree	0	1	1	0.8
Disagree	0.83	0.73	0.63	0.8
Neutral	1	0.72	0.5	0.65
Agree	0.32	0.45	0.72	0.52
Strongly Agree	0.33	0.29	0.75	1
ANOVA F stat	2.176**	1.974*	0.726	1.975*

**signifies $p \leq 0.10$, * signifies $p \leq 0.20$

Note that all “unsure about wtp” were removed for this test, in order to make it easier to determine whether there is a definitive trend. (0=no, 1=yes). This is why n varies between criteria.

Adapted from Thom and Conradie, 2012.

Quality

2012:

There appears to be no definitive trend for Quality 2012, however the dissatisfied and neutral respondents are considerably more willing to pay than the satisfied and very satisfied, which is as expected. Surprisingly, no strongly dissatisfied respondents were willing to pay for improved quality. In this study, the reason for this is that the sample size was too small- no members were very unhappy with quality, thus it is difficult to analyse whether or not this is a fair reflection of willingness to pay in 2012 (particularly within strongly unsatisfied group of respondents). Interestingly, the peak mean for willingness to pay is reached in the neutral category (all neutral respondents were willing to pay to improve quality), while for variety in 2012, the lowest mean willingness to pay is in the ‘neutral’ satisfaction level. Again, note that only 2 consumers responded that they were neutral, thus to better determine a relationship, a greater sample size is needed.

2015

There is a definite downward trend for the proportion of consumers’ willingness to pay for improved quality. This is as expected and in line with economic theory that predicts an inverse relationship between willingness to pay and satisfaction. The least satisfied consumers are all willing to pay (however, there was only one respondent in this category), whereas only 29% of the most satisfied are willing to pay.

The F stat for quality 2012 as seen in Table 3 indicates that the relationship between satisfaction and willingness to pay is statistically significant at a p-value of $p \leq 0.10$. Interestingly, this relationship is the most statistically significant (compared to variety 2012 and quality and variety in 2015). The lower F value and higher p-value for quality 2015 indicates that this relationship has become less clear over time. This is possibly due to the fact that overall quality has improved and so although subscribers still express dissatisfaction, they are less willing to pay to improve it. It is worth bearing in mind that the low number of respondents in 2012 ($n=36$) mean that this may not be reflective of the true relationship between satisfaction and willingness to pay for improved quality.

Variety

2012

The results follows a parabolic-like distribution, decreasing from its highest point (1 at “strongly disagree”, showing that all respondents that were strongly dissatisfied said they were willing to pay more to improve variety) until it reaches its lowest at “neutral” (mean of 0.5, indicating that half the members who said they were neutral about their satisfaction said they would be willing to pay more). It was expected that the more satisfied the consumer is with the variety, the less they would be willing to pay for its improvement. In reality, consumers follow that trend until “neutral”, at which point they become increasingly willing to pay for improvements. Interestingly, on average a large proportion of both the strongly dissatisfied and strongly satisfied are willing to pay for improved variety. For the strongly dissatisfied in 2012, this could indicate the value and prioritization of variety over quality for the consumer.

In comparing the 2012 variety versus 2012 quality, the proportion of consumers very satisfied with variety that are willing to pay, is almost twice that of quality. Again, this demonstrates prioritization of variety over quality.

2015

There is a downward trend of proportional willingness to pay at each satisfaction level, with the exception of the most satisfied, who are all willing to pay. A possible explanation for this is that these members are so impressed by the improved variety of the box that they believe further improvements can only give them more utility. The sample size for this category is small, with only 6 out of a 102 respondents falling into this group, making it difficult to draw meaningful conclusions from the data in this group. More of the less satisfied consumers are willing to pay in 2015 than in 2012. Variety has either become more important to the consumers over time, or consumers see more room for improvement now than in 2012. The smallest proportion of consumers willing to pay are satisfied (52%). They may feel that at their satisfaction level, there is no need for further variety improvement if the cost outweighs the benefit of doing so.

The low F stat for variety in 2012 (and high p-value, as seen in Table 3) indicates that there was not a statistically significant relationship between satisfaction with variety and willingness to pay for improved variety. This is in keeping with Thom and Conradie’s findings that suggest that regardless of satisfaction levels, subscribers are always willing to pay more for improved variety. In contrast, the F stat for variety in 2015 is statistically significant at a p-value of $p \leq 0.2$, reflecting that there is a significant relationship between satisfaction with variety and willingness to pay for improved variety in 2015. Although there is an overall downward trend and the emergence of a significant

relationship between satisfaction and willingness to pay, the data has a similar parabolic distribution, mirroring the 2012 data but at a lower satisfaction level.

It is interesting to note that despite the relationship between satisfaction and willingness to pay, very few consumers are willing to pay more than R20 for general improvements (only 15%). This break down is seen in Table 4 below.

Table 4: Proportion (%) respondents wtp by Rand amount

Amount wtp for improvements	% respondents
R5 - R10	23.3%
R10 - R15	26.7%
R15 - R20	23.8%
R20 - R25	7%
R25+	8.1%

Harvest of Hope has introduced price increases as of 1 April 2015. According to our questionnaire results, approximately 75% of members are prepared to pay the increased price. Though 20% are unhappy about the increase, they plan on staying with Harvest of Hope, highlighting their commitment to the scheme due to its social benefits and organic nature, rather than their subscription being based on satisfaction with more common demand-oriented, non-social and non-environmental aspects of the box itself, such as quality or variety. The majority of consumers cited their primary reason for subscribing to Harvest of Hope as because it supports the family farming movement among the unemployed. This highlights subscribers' desire to contribute to a socially beneficial enterprise. Conversely, subscribers cited price as their least important reason for subscription. This is emphasized when taking into account that, despite the general negative shift in consumer satisfaction with those aspects (e.g. price, quality), and despite the 20% proportion of unhappy-with-price-increase consumers, subscriber loyalty remains high.

This is in keeping with previous literature which finds that vegetable box schemes (similar to that of Harvest of Hope) provide an alternative food system whereby producers and consumers are not as separated by the supply chain (Brown *et al.*, 2009). Short supply chains such as a Harvest of Hope are becoming increasingly popular due to their helping consumers support the development of local agriculture while simultaneously receiving fresh produce (Uribe *et al.*, 2012).

Qualitative

Based on our questionnaire findings, certain suggestions for an improved vegetable box scheme are shared by a substantial number of subscribers. The following suggestions were most commonly listed (in order of most suggested, to least): customization of boxes, a greater variety of fruit and vegetables, better packaging (particularly for tomatoes) and more fruit. Other common problem areas tended to be in terms of quality, lettuce preference and requests for more regular seasonal vegetables. Interestingly, although not commonly suggested, ideas included offering a home delivery service, offering 5-7pm collection times, and to exclude herbs and chillies. This shows perceived room for improvement in terms of convenience.

Conclusion

Urban agriculture has been identified as a solution to poverty and food insecurity. Abalimi is a South African example of an urban agriculture project. Harvest of Hope markets the Abalimi produce in the form of a vegetable box scheme. Ensuring consumer satisfaction is essential to this project's continued profitability and it is this necessity that prompted our study. There is opportunity for additional investigation into the viability of urban agricultural schemes in South Africa, as little research (prior to Thom and Conradie (2012)) has been done on the matter. Thom and Conradie assessed consumer satisfaction and recommended improved variety and customisation as improvements to increase Harvest of Hope's general consumer satisfaction.

We used descriptive statistics and one-way Anova tests to achieve our results. Descriptive statistics using a Likert scale were used to assess the change in consumer satisfaction since 2012. One-way Anova tests were used to determine the relationship between quality satisfaction and willingness to pay for improved quality. One-way Anova tests were also applied to investigate the relationship between variety satisfaction and willingness to pay for improved variety as well as the relationship between length of tenure and consumer satisfaction.

Our follow up study to Thom and Conradie (2012) found that consumer satisfaction has decreased since 2012. This is most likely due to the change in consumers' surveyed, as only 18% of respondents in 2015 had been Harvest of Hope subscribers prior to or during Thom and Conradie's research. The relationship between satisfaction with quality and willingness to pay is downward sloping and has become less clear since 2012. Variety satisfaction and willingness to pay has a clear parabolic-like distribution and the 2015 data provides a clearer relationship than in 2012. Social enterprises such as this one should, in future, take into account variety as one of the critical determinants when making product decisions.

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