An Exploration of Price Premiums and Consumer Preferences towards Locally Produced Food

ADMN 598 Project

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EXECUTIVE SUMMARY

Introduction and Background

The purpose of this study is to provide information for Just Food, the client, to support their work in promoting more local production with local farmers and assist in the development of local government policies to support farmers' towards this end. Just Food is a non-profit organization in Ottawa that is involved in many activities related to promoting and supporting regional food security. To support their work towards meeting their mission "to ensure that Ottawa is Food Secure", Just Food is interested in determining whether locally produced food in the Ottawa region is being sold at a price premium, consumers' willingness to pay a price premium for locally produced food, and the factors that influence consumers to purchase local food. To meet Just Food's needs, a survey was undertaken to estimate price differences between produce sold in the Ottawa region that is considered locally produced versus produce which is not. Food is considered 'local' or 'locally produced' if it is grown and sold in the defined local region, namely the City of Ottawa or an adjacent county. Further, a literature review was undertaken on consumers' willingness to pay a price premium for local food and reasons for which consumers were willing to do so.

This information is useful as it explores the potential benefits to producers in marketing more of their products locally, and provides some information as to what factors could attract more consumers to purchase local food. It is recognized that there are limitations with the type of pricing evidence presented in this study, yet it can provide insightful information to local farmers and government. For example, the existence of price premiums for local food, which may be occurring due to a number of reasons, may be an incentive for local farmers to enter the market and for local governments to support the farmers. Decreased adverse environmental impact of local foods can also provide a rationale for the City of Ottawa to implement policies that support local food systems and local producers.

Just Food's work, and the contribution of this study, addresses a global and regional trend in the decreasing number of farmers and farm land, especially surrounding populated regions. Related to this trend, most foods retailed in Ontario are imported from outside the country. Greater dependence on imported food may make the Ottawa region more vulnerable to food security threats caused by climate change, and thus less resilient in the face of projected climate change impacts. One possible way to reverse observed land use trends for the region would be to support and promote more localized food systems, where residents of the area purchase food produced locally during times of the year when it can be grown or preserved locally.

Methodology

The first part of this study was a literature review of studies examining factors that influence consumers' decisions in local food purchases and willingness to pay price premiums for local food. The second part of this study was a pricing survey of common fruits and vegetable in order to determine whether there is a price premium associated with the locally grown version of the products. Purposive sampling was used to survey the price of eighteen common produce at 9 retail locations in the City of Ottawa from June to September 2007.

The criteria used in selecting the products and their varieties were as follows: it 1) is a fresh fruit or vegetable, 2) can be produced in the Ottawa region, and 3) is commonly bought by consumers. The nine locations comprised of three supermarkets, one small chain produce retailer, two health food stores, and three farmers' markets. Data was collected during the local peak harvest season for each product as to maximize the opportunity for obtaining information on available locally grown versions of each product. Data collected on each item comprised of: 1) whether the product was certified organic, organic but not certified, pesticide-free, or conventional, 2) the origin or source of the product, 3) the regular price per pound or kilograms (whichever data was available) for every product except corn, and price per dozen for corn 4) the price per quantity (for example, per bunch, basket, or a unit of items), 5) the quality of the item, 6) the date on which the price was observed, and 7) the location where the product was found.

Findings

The literature review revealed that many consumers have purchased, or are willing to purchase, locally grown vegetables and fruits at some point if products are available and properly labeled. Many consumers are willing to pay at least a 1 to 10% price premium for local food over what they would pay for non-local food. In some regions, a substantial number of survey respondents indicated that they are willing to pay a price premium of 20% or more for local over non-local food. On the other hand, a substantial number of survey respondents in some regions indicated that they would only be willing to pay an equal amount for local food as for non-local food. Relatively lower percentages of respondents indicated that they are only willing to pay less for local products.

The top reasons that consumers cite for purchasing local food are first and foremost freshness, quality, taste, and food safety and secondly to support local farmers and the local economy. The top reasons that consumers cite for purchasing at farmers' markets are the quality, freshness, and flavour of the food, supporting local farmers and the local economy, valuing the personal interaction with farmers and the friendly atmosphere. Coincidentally, similar traits are revealed when consumers are asked to indicate the top factors which influence their food brand or product decision. These factors are first and foremost quality, taste, and nutrition and health, and secondly supporting local family farms and locally grown/produced products. There is indication that consumers are not willing to forgo food

affordability and quality just because the product is local and would be unlikely to purchase the product a second time if it were not fresh, tasty, or of high quality. It appears that organic food shoppers may have a greater interest than conventional food shoppers in looking for and buying food produced locally. Also, local foods are preferred more readily and local food purchases are more common by consumers than organic foods.

The results of the pricing survey revealed that with the exception of a few non-organic and organic products, local versions of products had a price premium associated with them as compared to the non-local, imported version. This finding was consistent across both weeks of the survey for each of the products.

When the prices of products sold at the strictly 'local' farmers' market were compared to those at the 'mixed' farmers' market, a very strong trend was observed. With the exception of three products, there was a distinct and strong positive price premium for all products sold at the 'local' farmers' market, even though all products analyzed were from the local region, regardless of which market they were sold at. This trend could indicate that the assigned price premiums were associated with the guaranteed "local" characteristic of the market, rather than the localness of the products themselves. A similar trend was revealed when a comparison was made of the price of organic products that were advertised to consumers to be from the local region at an exclusively 'local, organic' farmers' market and at the 'mixed' farmers' market. This analysis revealed a strong price premium associated with products at the 'organic' market.

There are two main possible reasons for the observed prices of local food being higher than the prices of non-local food. The first reason could be attributed to consumers' willingness to pay a price premium for local food, as was indicated by the findings of the literature review. The second reason could be that the costs of production are higher for local produce. In order to more precisely describe the local and imported food markets and to determine the proportion of the higher prices of local food that can be attributed to demand effects and the proportion that can be attributed to supply effects, more information is needed than was in the scope of this study.

Data from the pricing survey was analyzed for the effects that the quality of products and location at which they are sold have on pricing. These tests indicated that local products are of higher quality than non-local products, but it appears that consumers do not pay price premium for a quality of a specific product, but instead they do so by shopping at venues more likely to carry local products, which seem to also charge higher prices for their products.

There were some important limitations in the methodology and collection of accurate and consistent data for the purpose of the pricing survey. Most importantly, since purposive sampling was used and samples were not randomized, there is skepticism about the accuracy of the estimated price premiums. A challenge in this study was the standardization of products to allow for a consistent comparison of prices and units.

Implications and Options

The main lesson learned from the pricing study is that, even though the reason for a higher price for most local food products is unknown, there is currently a price premium being charged for most locally grown products. Consumers' willingness to pay a price premium for local food (as indicated by the literature review) could be an incentive for farmers to want to produce more food for local sale.

According to the comparison made between local products sold at the 'local' and 'mixed' farmers' markets, it appears that some consumers in Ottawa are currently paying a price premium for local products that are sold in a manner that guarantees to consumers that the product is grown within a defined 'local' region. Also, as revealed by the literature review, some consumers are willing to pay a price premium for local food. To take advantage of these consumers' preference for locally produced food, better systems can be implemented in order to identify locally grown food more effectively. For example, venues could be designated specifically for the sale of food from the defined local region. Also, a local label could be developed that certifies farmers and processors who produce food from the defined local region.

The majority of the studies looking at factors influencing the purchase of local food have found that consumers are attracted to local food primarily due to quality, freshness, taste, and nutrition. Likewise, the same reasons attract consumers to shop at farmers' markets. Thus, in policy and marketing that attempts to promote local food to consumers, the attributes of quality, freshness, and taste should be the primary emphasis. Also, the maintenance of quality should be emphasized for local products and with local farmers in order to develop and maintain an image of high quality for local food. Quality assurance programs could be key to ensuring local food maintains its association with high quality. A quality assurance program can be incorporated into a possible local label certification system.

In addition to the above options and implications, information sharing and further research are recommended. The information presented in this paper regarding consumers' willingness to pay for and factors interesting consumers in local food, as well as the presence of price premiums in Ottawa for local food could be presented to farmers and local government through various methods. This information could help decision-makers in their local food policy decisions, and it could help farmers in their business and marketing decisions. Also, further research needs to be conducted in order to address the knowledge gaps regarding local food markets and preferences in the City of Ottawa, as well as other regions in Canada.

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INTRODUCTION

The world food supply is vulnerable to many threats, such as climate change, agricultural land loss, rising oil prices, and food-borne pathogens, among other threats (Barbolet et al., 2005). Changes to historic temperature regimes and precipitation patterns in the tropics and subtropics could also present possible threats to global food security (IPCC, 2007). On the other hand, there could be possible increases in productivity for higher latitude regions such as Canada (IPCC, 2007). Therefore Canada may benefit from taking a pro-active approach to ensuring its food security, and developing more localized food systems. Reducing a region's reliance on imported food and encouraging local food production, processing and consumption is an important step in increasing food security (Barbolet et al., 2005, Food Secure Canada, 2007, and Desjardins et al., 2002).

The purpose of this study is to provide information that can be used to promote more local production with local farmers and better supportive policies with the local government in supporting increased local production. This study was conducted for Just Food, a non-profit organization in Ottawa that is involved in many food related activities, including collaboration on food-related research and policy analysis. The organization was born out of the community's concern about food security. As such, Just Food's mission is "to ensure that Ottawa is Food Secure". According to Just Food (2007), food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary means. As well, foods are produced as locally as possible, and their production and distribution are environmentally, socially and economically just. This study directly aims to serve the organization's goals to "strengthen the local agricultural economy and increase access to locally grown food for all" (Just Food, 2007).

As a part of meeting their mission, Just Food is interested in finding out whether locally produced food in the Ottawa region is being sold at a price premium, for whatever reason, and consumers' willingness to pay a price premium for locally produced food. They are also interested in finding out what factors influence consumers to purchase local food. This information can help the client work towards its broader objective by promoting more local production with local farmers and better local government policies to support farmers' in marketing their products locally. This information is useful as it explores the potential benefits to producers in marketing more of their products locally, and provides some information as to what factors could attract more consumers to purchase local food. The results can be used by local farmers, farmers' markets' managers, the local government, as well as food retailers. To meet Just Food's needs, this study therefore undertakes to conduct a survey to estimate price differences between produce sold in the Ottawa region that is considered locally produced versus produce which is not. Further, this study undertakes a literature review on consumers' willingness to pay a price premium for local food to find out whether they are willing to do so, and if so, why.

The demonstration of consumers' willingness to pay a price premium and the presence of price premiums could present an incentive for local farmers to produce and market more

products locally. Decreased adverse environmental impact of local foods (as demonstrated by Xuereb, 2005) can also provide a rationale for the City of Ottawa to implement policies that support local food systems and local producers. This study is timely in that it comes at a time when the City is considering developing policies and by-laws in favour of local producers.

It is recognized that there are limitations with this type of pricing evidence, and conclusions cannot be drawn in regards to consumers' demands and preferences based on this type of pricing information. Yet, this pricing data can provide insightful information to local farmers and government. For example, the existence of price premiums for local food, which may be occurring due to a number of reasons, may still be an incentive for local farmers to want to enter the market and for local governments to support the farmers.

Just Food was also interested in a pricing study as there are many international studies which have attempted to estimate consumers' willingness to pay a price premium for locally grown food in contemporary western societies, but there are few studies that have attempted to measure actual price premiums in these marketplaces. There is also very little data related to pricing or consumers' preferences for local food in the region of Ottawa, Ontario, or even Canada in general. The pricing data presented in this study starts to address some of the gaps in information.

The following sub-section will define what is meant by "local food". The Background puts in context Ottawa's agricultural sector and localized food systems in general. The Literature Review serves to meet Just Food's broader objective and specific interests in promoting more local food through an exploration of the available literature of factors that influence consumers' locally grown food decisions and consumers' willingness to pay for local food. Although a similar study could have been conducted in Ottawa to detect consumers' willingness to pay for local food, Just Food was interested in the actual prices that are being charged for local food in the City. Therefore a pricing survey was conducted in order to detect whether a price premium is being charged for locally grown food as compared to imported, or non-local, food in the region. The pricing survey will be presented in the Methodology and Results sections. In the Discussion, both the findings of the literature review and the pricing survey will be discussed. The information provided by the literature review and the pricing study will be used to explore some plausible policy and marketing options for promoting more local food production in the Ottawa region in the Implications and Options section. Finally, the Conclusion summarizes the findings and implications of this study.

Definitions

In this study, the term "local food" implies food that is grown in the local vicinity of the region where it is sold. The specific area or region that is considered local is not consistent in the literature, and as such, when the term is used in reference to a reviewed study, it will imply local food as defined by the authors of that study. By extension, any food grown outside of this area will be referred to as non-local food.

For the pricing survey, there is a specific region which is considered local, based on the Canadian Food Inspection Agency's (CFIA) definition of "local" and "locally grown" food since Just Food operates using this definition. For Just Food's purposes, local food means food that is produced in a local government unit and sold only in that same local government unit or a local government unit that is immediately adjacent to that one. In accordance with this definition, local food in the City of Ottawa is produced and sold within the City or its six neighbouring counties in Ontario: 1) Prescott Russell, 2) Stormont, Dundas, and Glengarry, 3) Leeds and Glenville, 4) Renfrew, 5) Lanark, 6) Frontenac. Food produced in Ottawa's neighbouring county in Outaouais, Quebec is also considered local. These counties are shown in Figures 1 and 2.

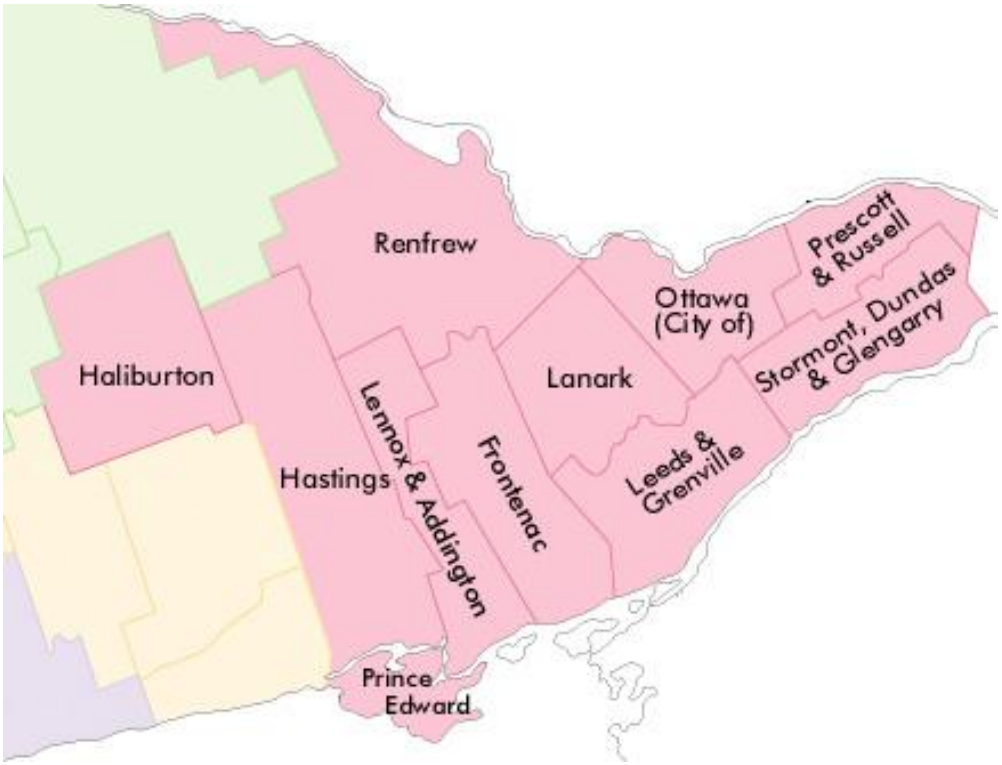

Figure 1. Map of Eastern Ontario

Source: http://www.21toronto.ca/yjs/map_east_ont.jsp

Figure 2. Map of Outaouais, Quebec

Source:
http://www.tourismeoutaouais.com/microsite/forfaitoutaouais/country/map/index_e.html

BACKGROUND

Although Ottawa has the largest agricultural economy of any major city in Canada, Ottawa area farmers are decreasing in number. Farmland constitutes about 41% (283,366 acres) of the total land area of the City of Ottawa (McGee, 2007a and City of Ottawa, 2005). From 1991 to 2006, the number of farms in the City of Ottawa decreased by 21% from 1,606 to 1,267 (McGee, 2007b). During the same period, Ottawa experienced a loss of 15,727 acres, or 5.3%, of its farmland (McGee, 2007a). The trends observed in land-use changes in the City of Ottawa are similar to those observed in the rest of Canada and the United States.

Despite the fact that Ottawa is the fourth most populated municipality in Canada with a population of about 875, 000, most of the agriculture surrounding the city specializes in goods grown for export for further processing and livestock feed. For example, in 2005, 45,100 acres, 48,000 acres, and 50, 400 acres respectively were seeded in grain corn, soybean, and hay, respectively (OMAFRA, 2007a). In contrast, only 63 acres, 52 acres, 44 acres, and 9 acres respectively were seeded in apples, green beans, tomatoes, and carrots (OMAFRA, 2007b).

Currently, most foods retailed in Ontario, including Ottawa, are imported from the United States and other farther regions. For example, a study examining food imports to the Waterloo Region, Ontario found that 58 common food products travel 4,497 km on average. Also, a seminal study measuring the distance food travels found that produce arriving by truck to the Chicago, Illinois food terminal market had traveled an average distance of 2,443 km to reach Chicago in 1998, whereas this distance was 2,004 km in 1981 (Pirog et al., 2001). This indicates that there was a 22% increase in the distance food had traveled from its source to the city in which it was to be retailed and consumed. These two studies are an indication of the general pattern of food systems in most of North America, and it can be assumed that similar food distribution patterns are taking place in Ottawa.

Greater dependence on imported food may make the Ottawa region more vulnerable to food security threats caused by climate change, and thus less resilient in the face of projected climate change impacts. Climate change may affect food systems in several ways. There could be direct effects on crop production through changes in precipitation patterns leading to droughts and floods, or changes to temperature regimes leading to changes in the length of growing seasons. Climate change could also affect food systems through changes to markets, food prices, and supply chain infrastructure (Gregory et al., 2005). The Intergovernmental Panel on Climate Change (2007) has indicated that crop productivity is projected to decrease in the lower latitudes for even small local temperatures increases of 1-2°C. Also, increases in the frequency of droughts and floods are projected to negatively affect local crop production. Yet crop productivity is projected to increase slightly at mid- to high latitudes for local temperature increases of up to 1-3 °C and decrease beyond that in some regions (IPCC, 2007).

In this light, there may be significant new opportunities for Canadian agriculture, provided sufficient precipitation occurs (Brklacich and Smit, 1992). But more importantly, if efforts to mitigate climate change result in substantial increases in transportation costs, local food will become relatively less expensive than imported food, encouraging substitution from imported food to locally produced food. Further, urban sprawl will be discouraged in favour of higher densities in the centre. However, current land use patterns and trends are based on a market system where transportation's externalities have not yet been fully internalized, and switching land use patterns after transportation costs have adjusted to reflect the climate change externality may be prohibitively costly. One possible way to reverse observed land use trends for the region, in anticipation of the adjustment, and to avert future switching costs, would be to support and promote more localized food systems, where residents of the area purchase food produced locally during times of the year when it can be grown or preserved locally.

Although a thorough review of the literature related to the benefits of local versus imported food is beyond the scope of this study, localized food systems are recognized as being generally associated with environmental benefits. For example, the study cited above which took placed in the Waterloo Region, Ontario, found that for 58 common food products to reach Waterloo, 51,709 tonnes of greenhouse gases are emitted annually. If all of these products were replaced with products from Southwestern Ontario, within a radius of 250 km from the city, there would be a reduction in greenhouse gas emission of 49,485 tonnes, equivalent to taking 16,191 cars off the road (Xuereb, 2005). Though there is some skepticism of the environmental benefits offered by local food systems, the evidence offered by government and scholarly studies provides more evidence in support of the benefits of local rather than imported food systems. As long as climate change externality have not been internalized through energy pricing, relative greenhouse gas emissions are not factored into the social welfare equation, and reducing such emissions via other means is warranted.

LITERATURE REVIEW

The purpose of the literature review is to serve the client's interest in knowing factors that influence consumers' decisions in local food purchases and willingness to pay price premiums for local food. Studies on consumers' attitudes, behaviour, and preferences in regards to locally grown food are relatively new and in their infancy. Yet, there is a substantial number of studies that have been done in recent years which attempt to measure consumers' willingness to pay for locally grown food compared to non-local food products. The majority of the studies are based in the United States or the United Kingdom.

A number of studies give an indication of trends in general interest in the purchase of local food in their respective regions. In general, it seems that many U.S. consumers have purchased, or are willing to purchase, locally grown vegetables and fruits at some point if products are available (Zumwalt, 2001 and Schneider and Francis, 2005). For example, 99% of respondents in a study covering Nebraska, Iowa, Wisconsin, and Missouri had purchased a locally produced food at some point in their life (Zumwalt, 2001). Canadian consumers have indicated that they believe it is important to buy local food and would be willing to buy more of it if it were labeled as local. Specifically, in Waterloo, Ontario, 49% of residents believe it is somewhat and 38% believe it is very important to buy local food (Xuereb & Desjardins, 2005).

There is also an indication that many consumers do or are interested in shopping at farmers' markets and other outlets featuring local products on a regular basis (Stephenson and Lev, 2004 and Schneider and Francis, 2005). For example, Schneider and Francis (2005) found that 64% of consumers in Nebraska were very interested in purchasing locally grown food from a farmers' market. Also, food store operators are recognizing that the demand for local foods is a new trend that is growing and has not yet peaked or leveled off (Guptill and Wilkins, 2002).

A number of recent studies give an indication of trends in consumers' willingness to pay premiums for local food. These studies are based on consumer questionnaires that include questions on willingness to pay for local products. Products surveyed include meat, dairy, fruits, and vegetables. Questionnaires also consider various other consumer attitudes towards buying local products, some of which are reviewed.

These studies reveal that in the regions that have been studied in both the United States and United Kingdom, many consumers are willing to pay at least a 1 to 10% price premium for local food over what they would pay for non-local food. In the state of Maine, this percentage is as high as 72% (Kezis et al., 1998) and in Southeast Missouri, it is as low as 21% (Brown, 2003). In some regions, a substantial number of survey respondents indicated that they are willing to pay a price premium of 20% or more for local over non-local food. For example, in Kentucky, 10% indicated so (Burdine et al., 2001), while in two Oregon communities, as many as 27% indicated so (Stephenson et al., 2004).

On the other hand, a substantial number of survey respondents in some regions indicated that they would only be willing to pay an equal amount for local food as for non-local food. The percentage of respondents indicating so ranged from 22% in the 10 states surveyed by Pirog (2003) to 58% in both Southeast Missouri (Brown, 2003) and Nebraska (Schneider and Francis, 2004). Relatively lower percentages of respondents indicated that they are only willing to pay less for local products. This percentage ranged from 7% in Nebraska, Iowa, Wisconsin, and Missouri (Zumwalt, 2001) to 16% in Oregon (Stephenson et al., 2004).

Overall, willingness to pay some price premium for local food can be found in most types of communities. For example, Stephenson and Lev (2004) found that in two different communities in Oregon in terms of affluence, education, and other social and political traits, there was common support in terms of interest and willingness to pay for local agricultural products. Other evidence to support this general trend is from a national U.S. survey, which found that over 70% of respondents are willing to spend more for food that is grown near where they live, rather than far away, while 14% would not (Wimberley, 2003).

Table 1 summarizes the findings of studies examining willingness to pay, categorized into a discounted price, no premium, 1-10% premium, 11-20% premium, and more than 20% premium. The reviewed studies differ in the manner in which they express price premium willingness-to-pay information, in that some expressed it in ranges and others in points. The table is formatted to correspond to information reported in both types of expressions. For example, the data in the column expressing the "percent willing to pay a 1-10% price premium" shows results from studies which expressed consumers' willingness-to-pay a "10% price premium" as well as studies which expressed consumers' willingness-to-pay a "1-10% price premium." As can be seen from the table, on average, in every region there are a substantial number of consumers who are willing to pay a price premium for locally grown food over non-local food, although the premiums vary in each region.

Table 1

Local Food Price Premium Willingness to Pay Studies

Study	Number of Respondents	Location	Food Terminology Used in Survey	Methodology	Percent of respondents willing to pay price premium for local over non-local products				
					Percent only willing to pay less for local products	Percent only willing to pay an equal amount	Percent willing to pay a 1-10% price premium	Percent willing to pay a 11-20% price premium	Percent willing to pay more than a 20% premium
Brown (2003)	544	Southeast Missouri	Products	Random sample mail survey	14%	58%	21%	n/a	7%

Burdine et al. (2001)	n/a	Kentucky	Meat products	Consumer survey at state fair	n/a[a]	43%	30%	17%	10%
Kezis et al. (1998)	239	Maine	Produce	Survey at farmers' market	n/a	28%	72%	n/a	n/a
Pirog (2003)	1,600	10 States[b]	Meat and produce items	Internet-based survey	5% (*Other*)	22%	69%	4%	n/a
Schneider and Francis (2005)	207	Nebraska	Food	Randomized mail survey	6%	58%	34%	n/a	2%
Stephenson et al. (2004)	315	2 Oregon communi-ties	Agricultural products	Randomized mail survey	16%	33%	24%	n/a	27%

Wimberley (2003)	819	U.S.A – nation wide	Food	Randomized mail survey	16% *(undecided)*	14% *(are not willing to pay more)*	70% *(willing to pay more)*	n/a	n/a
Zumwalt (2001)	500	Nebraska, Iowa, Wiscon-sin, Missouri	Produce	Random sample mail survey	7%	48%	36%	n/a	7%[c]

[a]n/a indicated that the price category was not an option in the study.

[b]Illinois, Indiana, Iowa, Kansas, Massachusetts, Minnesota, Missouri, Nebraska, Wisconsin, Washington

[c]Though the percentages in this row do not add up to 100%, these are the numbers quoted in the study.

Studies indicate contrasting information in regards to consumers' willingness to pay price premiums for food sold at a farmers' market compared to a supermarket. For example, Brown (2003) found that 59% of respondents expected to pay lower prices at the farmers' market as compared to supermarkets. On the other hand, Kezis et al. (1998) found that 72% of shoppers at a farmers' market in Maine were willing to pay more for produce at the market compared to produce at the supermarket. On average, shoppers were willing to pay a 17% price premium for non-organic produce at the farmers' market.

In addition to studying the price premiums that consumers are willing to pay for local over non-local food products, many studies have taken surveys of factors that influence consumers' interest in local food products, factors that influence consumers' interest in shopping at farmers' markets, and factors influencing consumers' food purchase decisions. These studies reveal very similar results.

The top reasons that consumers cite for purchasing local food, in Canada, the United States, and England, are primarily freshness, quality, taste, and food safety and secondarily to support local farmers and the local economy (Guptill and Wilkins, 2002, Jekanowski et al., 2000, Pirog, 2003, Stephenson et al., 2004, Winter 2003, and Xuereb and Desjardins, 2005). The top reasons that consumers cite for shopping at farmers' markets are the quality, freshness, and flavour of the food, supporting local farmers and the local economy, valuing the personal interaction with farmers and the friendly atmosphere (Kezis et al., 1998 and Zepeda and Leviten-Reid, 2004). Coincidentally, similar traits are revealed when consumers' are asked to indicated the top factors which influence their food brand or product decisions in general. These factors are primarily quality, taste, and nutrition and health, and secondarily supporting local family farms and locally grown/produced products (Schneider and Francis, 2005 and Zumwalt, 2001).

The findings of the above studies, which show an alignment of the factors that influence consumers to seek local food and farmers' markets with factors that influence consumers' food brand or product decision, are consistent with the findings and conclusion of a study conducted in Southeast Missouri. This study found that consumers who listed quality and freshness as their most important product concern were more likely to seek out local produce (Brown, 2003). This study also found that since respondents generally consider local produce to be of higher quality, they give this as the main reason they shop at farmers' markets.

There is evidence that although consumers with high levels of interest in local food highly rate the importance of food features such as supporting local farmers, they also rate the importance of the food's price, as well as its quality, taste, and freshness very similarly to less interested consumers. Thus, consumers are not willing to forgo food affordability and quality just because the product is local and would be unlikely to purchase the product a second time if it were not fresh, tasty, or of high quality (Pirog, 2003 and Tregear and Ness, 2005).

Much of the literature on consumers' preferences and behaviours towards local food includes an exploration of consumers' preferences and behaviours towards organically grown local and non-local food. Therefore, a discussion of the connection between these two product attributes or traits and the role of organic products in the local food market is warranted.

Some studies find a positive interaction between local and organic traits in food. It seems that organic food shoppers may have a greater interest than conventional food shoppers in looking for and buying food produced locally (Zepeda and Leviten-Reid, 2004). For example, as many as 90% of consumers in one area who had purchased organic and/or all-natural products had also purchased locally grown versions of these organic products. Amongst those who had not purchased organic or all-natural foods, as many as 69% would purchase locally grown organic or all-natural foods if it were available (Zumwalt, 2001). Consumers may also be more willing to pay a price premium for locally grown food if they purchased organic food (Brown, 2003).

Both in England and the United States, it has been found that local foods are preferred more readily and local food purchases are more common by consumers than organic foods (Winter, 2003, Pirog, 2003, and Schneider and Francis, 2005). For example, with price and appearance being equal, consumers have indicated that they would prefer food that is labeled as being "grown locally by family farmers" more than "grown locally-organic" (Pirog, 2003). Food businesses indicate that consumers request food that is grown locally more frequently than food that is organically grown (Pirog, 2003)

In regards to local food pricing, one study found that the pricing of local foods was cited as a barrier, but only in regards to local produce that was organically grown, as the price difference between organic and conventional products made the local organic products uncompetitive (Guptill and Wilkins, 2002). Therefore, the literature reveals three different interactions between the local and organic attributes of food. Firstly, consumers who prefer organic food would be more likely to purchase local food. Secondly, in general, consumers are more likely to seek out local attributes of food over organic attributes. And thirdly, the higher price associated with organic products may create a price barrier to consumers in purchasing local food that is also organic.

METHODOLOGY

The purpose of the pricing survey was to detect whether there is a price premium being charged for locally grown food compared to non-local food sold in Ottawa. The hypothesis for this study was that there is a price difference between local and non-local version of products. The null hypothesis, in turn, was there is no price difference between local and non-local version of products.

The target population for the study was 18 products (14 specific types of vegetables, 3 specific types of fruits, and 1 specific type of herb) being sold at 9 specific retail locations in the City of Ottawa, from June 30 to September 15, 2007. The specific time period for each product is indicated in Table 2. The units of analysis were the 18 products measured in dollars per 100 grams for 17 products (arugula, green bean, broccoli, carrot, field cucumber, garlic, mesclun lettuce, snap pea, green pepper, Yukon gold potato, bunch spinach, butternut squash, green zucchini, and basil) and dollars per 12 units for one product (peaches and cream corn).

This study used purposive sampling, in that the sample was chosen with a purpose in mind. Purposive sampling ensures that the sample contains those cases which will give the information required for the study (Miedema, 2006). Just Food wanted to obtain a comparison of the prices of common vegetables and fruits of which local and imported versions are available in Ottawa. To cater to this purpose, the following criteria were used in selecting the products and their specific varieties: It 1) is a fresh fruit or vegetable, 2) can be produced in the Ottawa region, and 3) is commonly bought by consumers.

In selecting the products to be part of the pricing survey in this study, the criteria that had been used in other similar studies were considered. Miedema (2006) was the only study that was found that attempted to measure the price of local and non-local food products, although the pricing survey was not a major component of the study. Some of the criteria used in that study conducted in the Region of Waterloo, Ontario were adapted. Miedema's surveyed prices, amongst other characteristics, at 15 supermarkets, one independent grocery store, and two farmers' markets in the Region of Waterloo, Ontario for 11 products, during their peak Ontario season.[1]

The products to include in the Miedema (2006) survey were determined by the following criteria: 1) fresh fruit or vegetable, 2) could be produced or is produced in the Waterloo region, 3) was included in at least one of three other studies commissioned by the Region of Waterloo on the regions' food system, and 4) commonly bought by people.

Based on Miedema's study and the client's needs, the preliminary selection of the products were made. Managers of the Ottawa farmers' markets were consulted in regards

[1] See Appendix A for the finding of this study which related to local and non-local food pricing.

to the appropriateness of the selected products, and adjustments were made in accordance with the suggestions. Due to this consultation, a few specialty products were included in the list of products in order to expand the variety of information obtained. These products were arugula and basil.

Table 2

Products and Price Collection Dates

Product	Week One	Week Two
Vegetables		
Arugula	June 30	July 7
Bean (Green)	August 4	August 18
Broccoli	August 18	September 1
Carrot (Long)	September 1	September 15
Corn (Peaches and Cream)	August 18	September 1
Cucumber (Field)	August 18	September 1
Garlic	September 1	September 15
Lettuce (Mesclun)	June 30	July 7
Pea (Snap)	September 1	September 15
Pepper (Green)	September 1	September 15
Potato (Yukon Gold)	September 1	September 15
Spinach (Bunch)	June 30	July 7
Squash (Butternut)	September 1	September 15
Zucchini (Green)	August 4	August 18
Fruits		

Apples (Macintosh)	September 1	September 15
Strawberry	June 30	July 7
Tomato (Field)	August 4	August 18
Herbs		
Basil	August 4	August 18

Purposive sampling was used to select the locations at which the survey will take place. It was important for Just Food to gather information from different types of vendors, such as supermarkets, health food stores, and farmers' markets. Also, including different kinds of locations allows for a greater opportunity to find products that are produced both locally and non-locally. The nine locations comprised of three supermarkets, one small chain produce retailer, two health food stores, and three farmers' markets.

Three locations were chosen in each of three central areas of Ottawa. The three areas in which price surveys took place were either in downtown Ottawa or in very close proximity to it. All three locations have a mix of residential and vibrant commercial properties. Two of the areas have diverse income levels and ethnicities. The third has a relatively average higher income level. All locations were within a 3.5 kilometre radius. Each of the three areas contained one farmers' market, one supermarket, and one 'other' type of retailer such as a small produce retailer or a health food store. The farmers' markets comprised of one market with local and non-local, and primarily non-organic products (referred to as the 'mixed farmers' market), one market with exclusively local and primarily non-organic products (referred to as the 'local' farmers' market), and one market with exclusively products that are both local and organic (referred to as the 'organic' farmers' market).

The data was collected by a group of volunteers who were trained by the main researcher on the methods for surveying, weighing, and collecting consistent information. Price data was collected on six days during June to September 2007. Data for each product was collected twice, timed two weeks apart, based on the peak season during which each product is harvested in the local region. Timing the surveys during the local peak harvest season allowed for the greatest opportunity to obtain information on locally grown versions of each product. Timing the two surveys for each product two weeks apart allowed for the detection of any fluctuations in market dynamics. In the Ottawa region, there is a relatively short time period during which local produce is available due to the region's climate. Therefore, there was a small window of opportunity during which the data for each product could be collected.

The local harvest peak season dates were obtained from the Ottawa Buy Local Food Guide (2nd Ed.). The 'organic' farmers' market operated only on Saturday and the 'local' one operated only on Sundays. Therefore, for consistency, all data was collected on Saturdays at every location except for the 'local' farmers' market, which was collected on Sundays.

Data collected on each item comprised of: 1) whether the product was certified organic, organic but not certified, pesticide-free, or conventional, 2) the origin or source of the product[2], 3) the regular price per pound or kilograms (whichever data was available) for every product except corn, and price per dozen for corn 4) the price per quantity (for example, per bunch, basket, or a unit of items), 5) the quality of the item, 6) the date on which the price was observed, and 7) the location where the product was found.

The quality of the item was rated between 1 to 3, with 1 being high quality and 3 being poor quality, based on observable qualities such as freshness, blemishes, and insect bites. This data was collected in order to distinguish another factor for price differences.

[2] Note here that data on the "marketed" origin or source of the product was collected since that is the only data available to consumers. In reality, product origin labels may be incorrect or misleading, either intentionally or unintentionally. Yet, if there is a consumer preference for local food, consumers would be basing their choice on the marketed label, therefore the collection of data on the marketed origin was appropriate for this study.

FINDINGS

Based on their origins, products were categorized into "local" if the product was grown in the local region as defined by the Canadian Food Inspection Agency (see the Definitions sub-section), "Ontario/Quebec" if the product was grown in either of these provinces but outside the "local" region, or "non-local" if the product was grown outside of Ontario or Quebec.

Products were categorized into one of six categories based on their source and organic/non-organic trait as follows: 1) local, organic, 2) local, non-organic, 3) Ontario/Quebec, organic, 4) Ontario/Quebec, non-organic, 5) non-local, organic, and 6) non-local, non-organic. Organic products were categorized separately since the organic attribute could affect product pricing. As well, this allows for the detection of different premiums for local products with and without the organic attribute.

Although samples were found for most products with each of the six combinations of attributes, some were not found and for some, only a small number of samples were found. Table 3 summarizes the number of usable samples found for each product with the combination of attributes found. A few samples were labeled as "pesticide-free" or "no pesticides". These samples were categorized with non-organic products as their prices resembled non-organic products' prices more than organic products' prices.

Table 3

Number of Samples Found for Each Product Type

	Attributes					
Product	Non-Organic, Non-Local	Non-Organic, Que/Ont	Non-Organic, Local	Organic, Non-Local	Organic, Que/Ont	Organic, Local
Apple	0	8	2	0	1	1
Arugula	3	0	1	6	0	3
Basil	7	1	4	0	0	2
Bean	5	2	10	1	2	4

Broccoli	5	6	6	4	2	4
Carrot	4	12	14	8	3	3
Corn	2	4	15	1	1	3
Cucumber	0	7	10	1	2	3
Garlic	13	1	2	3	3	4
Lettuce	5	0	4	9	0	1
Pea	8	0	0	0	0	1
Pepper	5	6	5	2	2	2
Potato	4	5	2	0	0	1
Spinach	4	3	0	1	2	1
Squash	4	3	3	3	1	2
Strawberry	6	5	10	6	0	4
Tomato	4	4	7	0	1	2
Zucchini	6	1	7	0	4	2

There was a need to differentiate sources of products in order to distinguish between "local" and "non-local" products. A method needed to be used to allow for the distinction between products shipped directly from local area farms to Ottawa and products that are not shipped directly, but rather through a major food terminal. The reason for this is that some products that are grown in Ontario and Quebec are not shipped directly to Ottawa. For example, products from Ontario not within the defined local area may be shipped to the Toronto Food Terminal prior to being shipped to Ottawa. Therefore, it is often difficult to track the route of Ontario and Quebec products that are not from within the local area. Also, some retailers may indicate that a product from the Toronto or Montreal Food Terminal is from Ontario or Quebec, whereas it could be from anywhere.

In order to be able to make a clear distinction between food from the defined local area and imported food, products from Ontario and Quebec outside of the local region were

excluded in the main analysis as they are most likely to have been shipped to a major food terminal before being shipped to Ottawa. Therefore, the analysis in this section is based on products grown within the local area and products grown outside of Ontario and Quebec, thus excluding products grown in Ontario and Quebec but outside the defined local region. Appendix B contains the analysis of the same data with Ontario and Quebec products categorized together with the local products.

Table 4 summarizes the calculated price premiums that were observed during week one, week two, and both weeks together of data collection for each product. All prices were converted to a unit of price ($) per 100g, except for corn, which was converted to a unit of price ($) per dozen. The price premiums were then calculated using the following formula:

$$\frac{\text{(average price for local products – average price for non-local products)}}{\text{(average price for non-local products)}}$$

The results are expressed in percentage terms since that is the method used in the rest of the literature, and therefore allows for better comparison with other studies and future studies. Appendix C displays the results of the tests of significance for these calculated price premiums.

When data from both weeks are considered, overall, most non-organic products have a positive price premium for their locally grown versions when compared to their imported counter-parts from outside Ontario and Quebec. Ten non-organic products have a positive price premium for local over non-local versions (bean, carrot, corn, garlic, pepper, potato, squash, strawberry, tomato, and zucchini). Three products have a discounted price (arugula, basil, and broccoli). One product has no price difference (lettuce).

Overall, most organic products also have a positive price premium for their locally grown versions when compared to their imported counter-parts. Eight organic products have a positive price premium for local over non-local versions (arugula, bean, carrot, broccoli, potato, squash, spinach, and strawberry). Four have a discounted price (corn, cucumber, lettuce, and pepper). Although the percentage differences in prices are quite high for some products, the dollar value of this difference is less than $0.30 for the majority of both the non-organic and organic products.

Graphs 3, 4, and 5 below show the average price premiums observed for both weeks, as well as for each week separately, for the organic and non-organic products. There was inadequate data to make any comparisons for apple and peas, therefore these two products are not included in the figures below.

Table 4

Price Differences of Local Products Compared to Non-Local Products

Product	Non-Organic				Organic			
	Both Weeks		Week One	Week Two	Both Weeks		Week One	Week Two
	Price Difference ($)	Price Difference (%)	Price Difference (%)	Price Difference (%)	Price Difference ($)	Price Difference (%)	Price Difference (%)	Price Difference (%)
Apple	N/A	N/A[a]	N/A	N/A	N/A	N/A	N/A	N/A
Arugula	-1.32	-74	-68	N/A	0.88	33	7	83
Basil	-3.68	-69	-78	-57	N/A	N/A	N/A	N/A
Bean	0.38	107	117	70	0.21	23	39	N/A
Broccoli	-0.03	-10	5	-23	0.13	32	41	20
Carrot	0.15	69	85	36	0.16	56%	61	49
Corn	1.22	41	N/A	45	-2.11	-26	N/A	-34
Cucumber	N/A	N/A	N/A	N/A	-0.07	-15	N/A	-53

Garlic	1.28	241	198	N/A	2.66	403	353	453
Lettuce	-0.01	0	15	-46	-1.52	-58	-38	N/A
Pea	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pepper	0.03	11	6	19	-0.11	-16	1	-33
Potato	0.30	131	124	138	N/A	N/A	N/A	N/A
Spinach	N/A	N/A	N/A	N/A	0.08	26	N/A	N/A
Squash	0.06	39	-7	66	0.05	27	27	27
Strawberry	0.15	27	38	22	0.36	50	35	89
Tomato	0.10	34	29	41	N/A	N/A	N/A	N/A
Zucchini	0.14	64	71	4	N/A	N/A	N/A	N/A

[a]N/A indicates that were was insufficient data to calculate a premium.

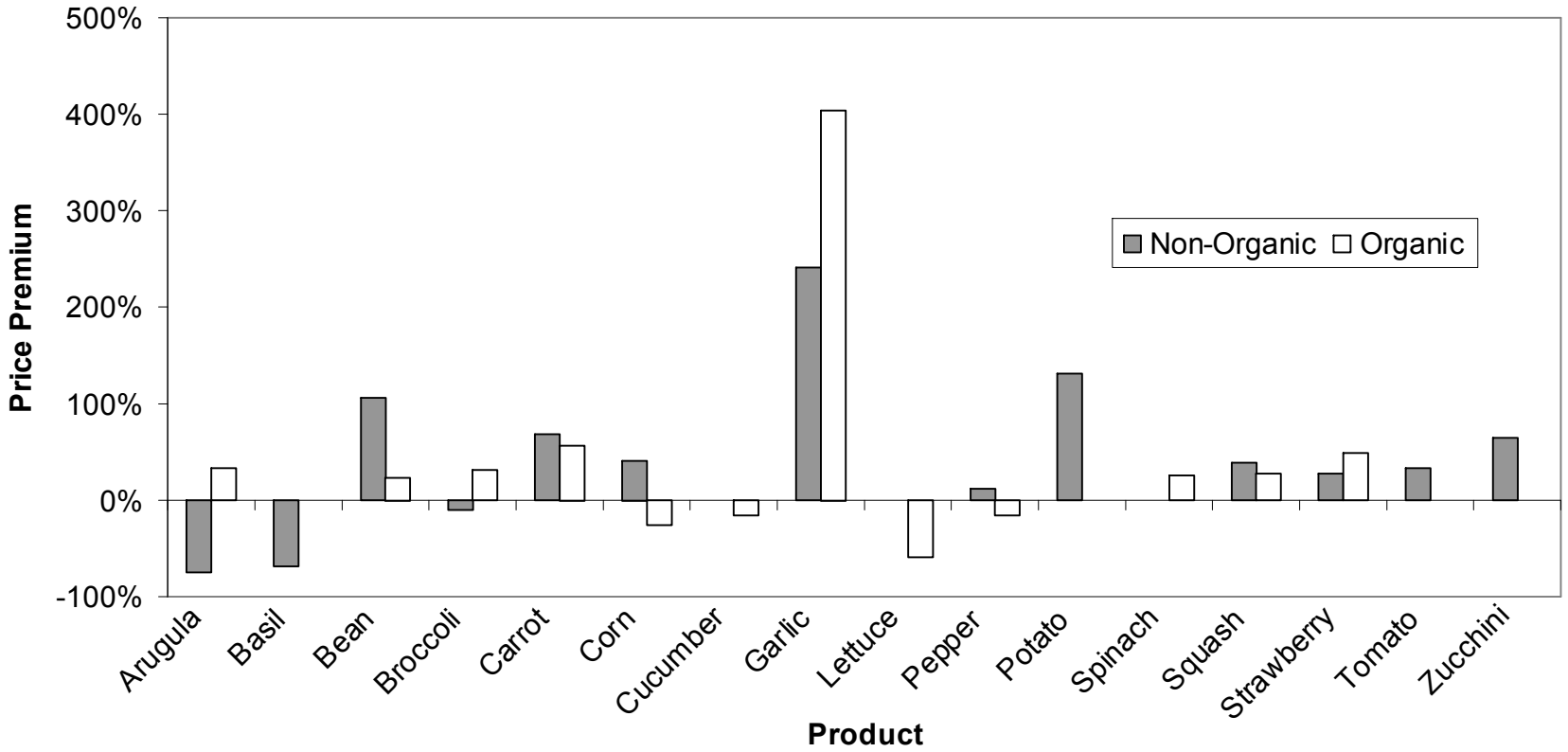

Figure 3. Average Price Premiums Observed During Both Weeks

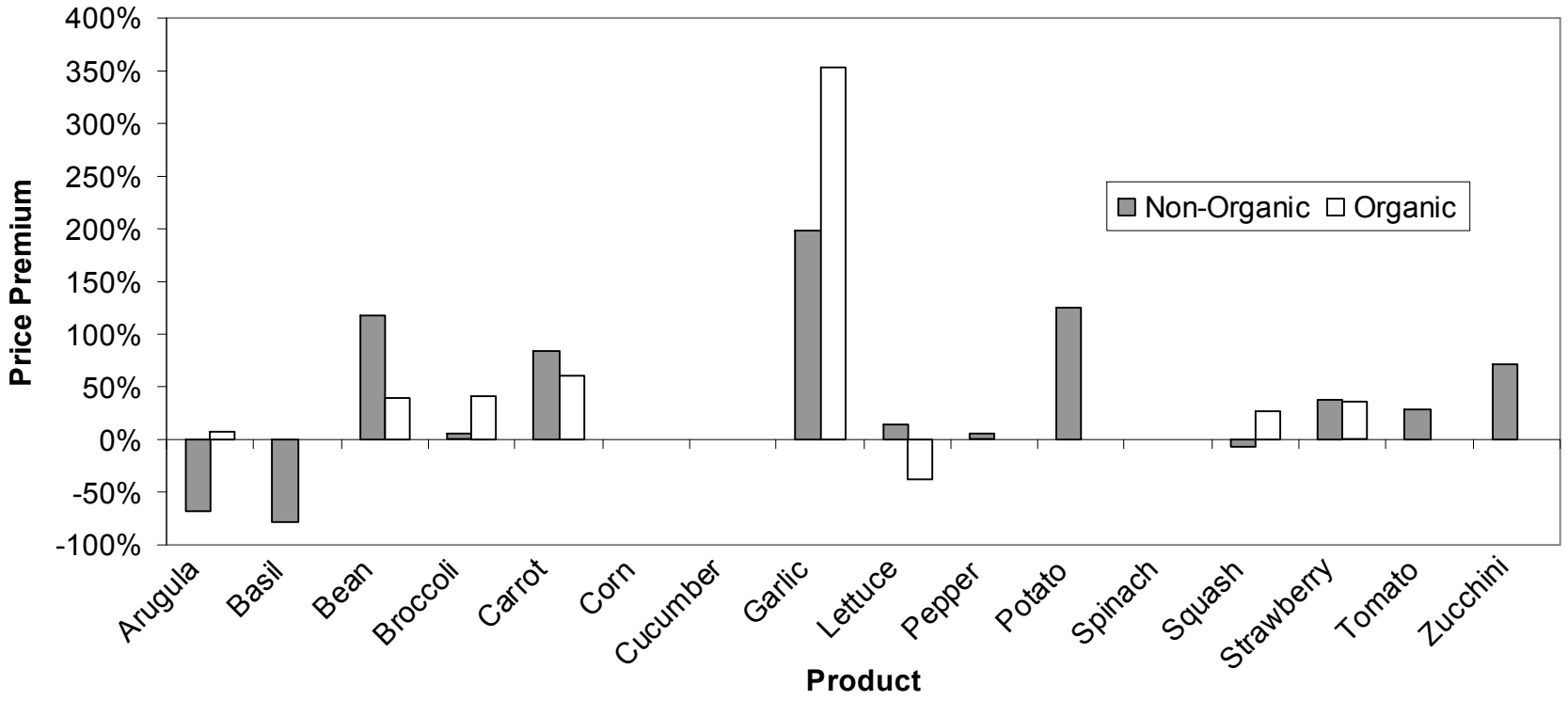

Figure 4. Average Price Premiums Observed During Week One

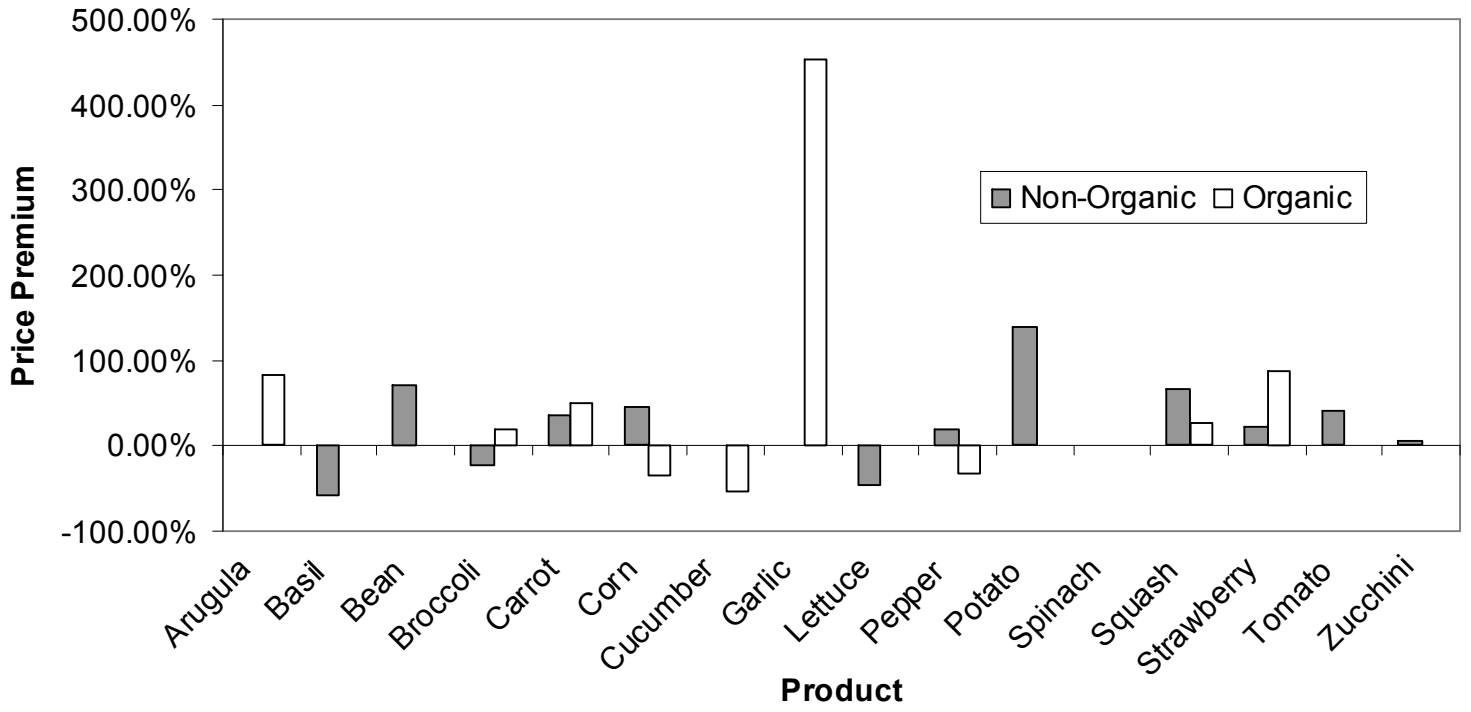

Figure 5. Average Price Premiums Observed During Week Two

An analysis was performed to compare prices observed at the 'mixed' farmers' market and the exclusively 'local' farmers' market. This analysis is important since the 'local' market has taken steps to ensure that only products from the local region are sold at the market and the market is advertised using its strictly local policy. On the other hand, the mixed farmers' market does not currently take steps to ensure that only products from the local region are sold and also does not advertise itself as a local market. Other than this characteristic, these two markets are relatively similar.

This is a comparison solely of the price of products that were advertised to consumers to be from the local region. Thus, any price premiums arising from the comparison of these two markets could possibly be attributed to the "local" characteristic of the market, rather than the product. This is also a good comparison since products at both markets are sold in the same format, and therefore this is a more accurate comparison than comparisons made of products between the farmers' markets and supermarkets (this limitation is discussed further in the Discussion section).

This analysis compares only non-organic products, based on the data available at the two markets. The analysis, displayed in Table 5 and Figure 6, resulted in the strongest trend of this study. There is a strong trend showing a positive price premium for products being sold at the local market as compared to the mixed market. Of the products that could be compared due to adequate data, ten products had a positive price premium at the local market over the mixed market for both survey weeks (basil, bean, broccoli, carrot, corn, cucumber, lettuce, pepper, tomato, and zucchini). Three products at the local market had a discounted price (carrot, squash and strawberry). These findings are comparable to those shown in Table 4 and Figures 3 to 5, since this analysis only considers products advertised as being from the defined local region, whereas the other analysis considers both local and imported products.

The findings displayed in Tables 5 and 6 and Figure 6 could possibly be because people with strong preferences for local produce are more likely to both be willing to pay more for local produce and to shop at the 'local' farmers' market. The availability of the market, which provides them for a large selection of preferred foods in one location, allows them to save on shopping time and would then further increase their willingness to pay more for the produce because of the time savings.

Table 5

Price Differences of Products at 'Local' Compared to 'Mixed' Farmers' Market

Product	Date	Price Premium
Basil	Separate Weeks	176%
Bean	Week One	35%
	Week Two	85%
Broccoli	Week One	16%
Carrot	Week One	-29%
	Week Two	40%
Corn	Week One	18%
	Week Two	18%
Cucumber	Week One	14%
	Week Two	175%
Lettuce	Week One	289%
Pepper	Week Two	47%
Tomato	Week One	104%
	Week Two	70%
Squash	Week Two	-25%
Strawberry	Week One	-2%
	Week Two	-15%
Zucchini	Week One	118%
	Week Two	204%

Since the comparison between the 'local' and 'mixed' farmers' markets did not allow for organic products to be considered, a comparison was conducted between products available at the exclusively local and 'organic' farmers' market which sells local products and the local, organic products at the 'mixed' farmers' market. Table 6 displays the results of this analysis. This comparison indicates a strong price premium associated with products at the 'organic' market.

Table 6

Price Differences of Products at 'Organic' Compared to 'Mixed' Farmers' Market

Product	Date	Price Premium
Cucumber	Week Two	160%
Carrot	Week Two	99%

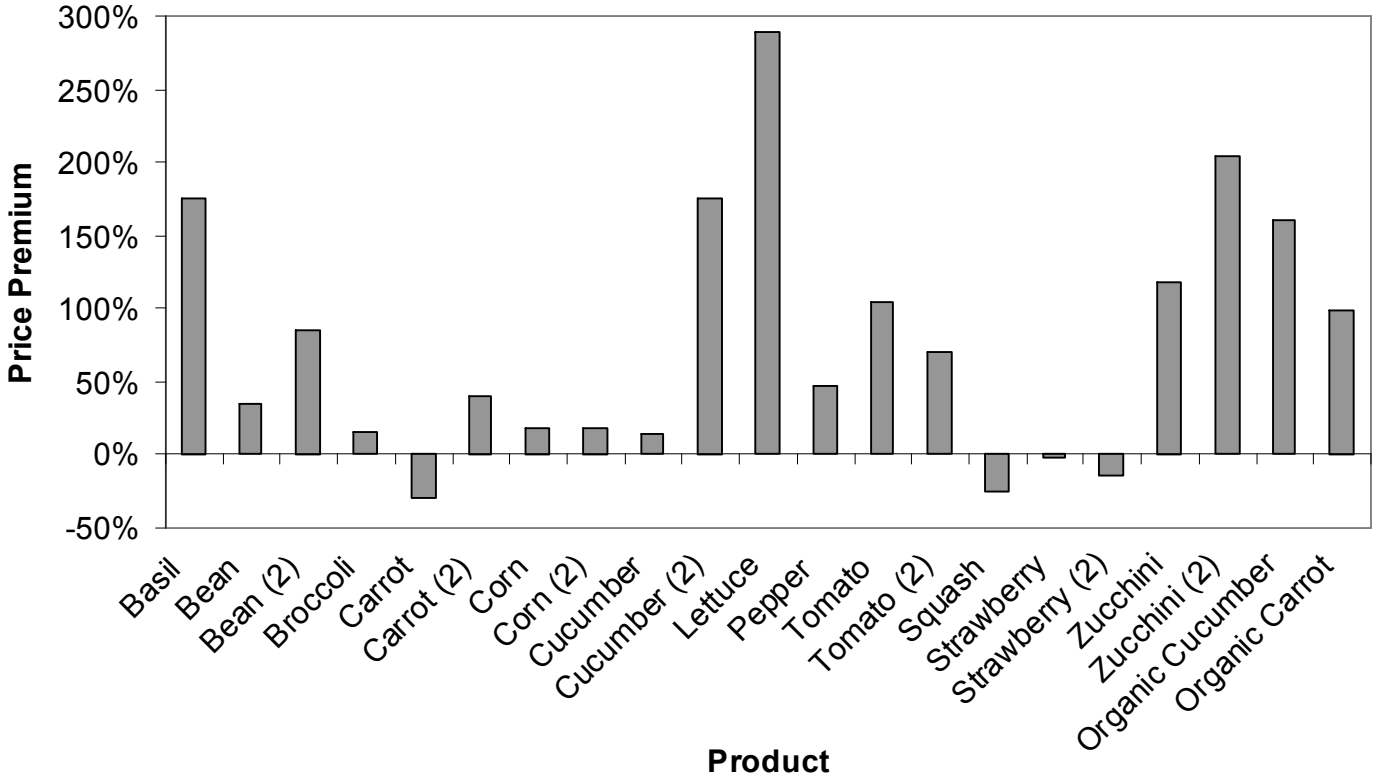

Figure 6. Price Premiums of Products at 'Local' Compared 'Mixed' Farmers' Market

An analysis was conducted to determine the percentage of each product type (local and non-local) which obtained each of the three quality ratings. Table 7 displays the results of this analysis. According to these results, local products are of higher quality than the non-local products, with 95% of local products rated as top quality and only 75% of non-local products with the top rating. The hypothesis that local and non-local are of the same quality can be rejected ($p < 0.000$). When the same analysis is conducted by product type (results not shown in this report), the results are usually similar to the overall results displayed in Table 7, but there are not enough data points to reject the null hypothesis that local and non-local products are of the same quality except for tomatoes ($p = 0.027$) and zucchini ($p = 0.097$).

Table 7

Product Source and Quality Rating

Quality	1 (High)	2 (Medium)	3 (Poor)
Non-Local Products	75%	19%	6%
Local Products	95%	4%	1%

To find out whether price was affected by quality, the log of price was regressed on two quality dummy variables, one for medium quality, and one for poor quality, after controlling for produce type. The results indicated that quality does not affect the price. Adding controls for local and organic resulted in significant premiums for these characteristics. However, once location was also controlled for, the local premium was no longer statistically significant. Higher prices were found at the health food store, the local farmers' market, and the organic farmers' market. These findings are discussed further in the next section.

DISCUSSION

Findings

This study has revealed some important trends in regards to local food and local food retailers. With the exception of a few non-organic and organic products (namely non-organic arugula, basil, broccoli, and organic corn, cucumber, lettuce, and pepper) the findings were that all other products had a price premium associated with their local version as compared to the non-local, imported version. This finding was consistent across both weeks of the survey for each of the products.

This finding is contrary to the finding of a similar study that was conducted in the Waterloo Region, Ontario (Miedema, 2006). As indicated in Appendix A, the study found that there was no strong pricing trends across the 11 studied products for the audited vendors, but in general, imported produce was priced either as low as or lower than Ontario and Waterloo Region produce. As the study audited prices at 15 supermarkets and only 2 farmers' markets, the much higher weight of pricing information from the supermarkets could have influenced the findings. It is possible that supermarkets price differentiate less, or are less consistent in price differentiating products from different regions (as indicated by the analysis in Appendix D).

When the prices of products sold at the strictly 'local' farmers' market were compared to those at the 'mixed' farmers' market, a very strong trend was observed. With the exception of a few products, there was a distinct and strong positive price premium for all products sold at the 'local' farmers' market, even though all products analyzed were from the local region, regardless of which market they were sold at. This trend could indicate that the assigned price premiums were associated with the guaranteed "localness" characteristic of the market, rather than the localness of the products themselves.

While the data in the literature review provides evidence that many consumers are willing to pay a price premium for local food, the interpretation of equilibrium price data involves both supply and demand factors. More information than was in the scope of this study is needed in order to determine the supply and demand relationship for local food, and in order to determine the cause of the observed higher prices of many locally grown products over their imported counterparts.

There are two main possible reasons for the observed prices of local food being higher than the prices of non-local food. One reason could be attributed to some consumers' willingness to pay a price premium for local food, as was indicated by the findings of the literature review. Another reason could be that the cost of production is higher for local produce. In order to more precisely describe the local and imported food markets and to determine the proportion of the higher prices of local food that can be attributed to demand effects and the proportion that can be attributed to supply effects, more

information is needed, including information about the relative supply and features of the production process. This information is beyond the scope of this study.

The tests conducted regarding quality and location offer further insight into consumers' behaviour. These tests indicated that local products are of higher quality than non-local products, but it appears that consumers do not pay price premium for a quality of a specific product, but instead they do so by shopping at venues more likely to carry local products, which seem to also charge higher prices for their products. These findings support the idea that consumers sort themselves into stores that carry local products, which at the same time allows consumers to find a higher average quality product, but that they are also paying more for that opportunity.

A possible concern raised by the findings of the pricing survey is that most consumers would be discouraged from purchasing locally produced food due to the price premium associated with these foods. Yet as indicated by the data in Table 4, although the price differences in terms of percentages is substantial in some cases, the price difference between local and non-local products in dollar value is usually small. Therefore the higher prices charged for local food should not have a substantial effect on the average consumer's overall food budget.

Limitations

There were some important limitations in the methodology and collection of accurate and consistent data for the purpose of this study. Most importantly, since purposive sampling was used and samples were not randomized, there is skepticism about the accuracy of the estimated price premiums. Also, the calculated premiums are point estimates and the sample sizes are too small to generate narrow confidence interval. The small sample size for some products may have been caused by an irregular local harvest season, one in which there was a late start and an early finish.

Another limitation is that data needed to be standardized, so that all prices could be compared. Supermarkets and health food stores mostly priced products by weight, whereas farmers' markets mostly priced products by the box, pint, basket, or per unit. Due to this, most products from farmers' markets were purchased and weighed and for those that were not purchased, attempts were made to base calculations on the most average looking unit of each product. A potential inaccuracy occurred here for only a few items as not all boxes, baskets, and units of produce at farmers' markets weigh exactly the same amount.

The discounted prices associated with arugula and basil could be explained by a similar limitation as different kinds of locations sell products in different formats. Products such as arugula and basil are most often sold as complete plants harvested by the root at

farmers' markets (where most of the local products were found), with relatively little processing involved. On the other hand, at supermarkets and most health food stores (where most of the non-local products were found), these same products are sold as a product harvested by the leaves and packaged. The processing involved for the supermarket and some health food store products could explain the higher prices of products at these locations[3]. This limitation is avoided in the comparison between the two farmers' markets since products are sold in the same format at both locations.

The processing factor could also be an explanation for the discounted price of local, organic lettuce. Non-local, organic lettuce is processed and packaged in a plastic container, whereas local, organic lettuce tends not to be very processed, and is not packaged in the same manner. Non-local, organic spinach also has this characteristic, but there was a lack of local data for this product, therefore price premium comparisons were difficult to make.

Another factor that may have affected prices is the location or venue at which a product was sold. Farmers' markets tend to sell local products, while supermarkets tend to sell non-local, or sometimes products from Ontario or Quebec. Therefore, the degree to which the location at which a product is sold affected its price was difficult to distinguish and comparisons across locations were difficult to make. The only such analysis that was possible was the degree to which prices of local products were affected by their retail at a strictly 'local' farmers' market compared to a 'mixed' farmers' market. However, given that farmers markets and supermarkets tend to specialize in produce from different origins and attract different types of consumers, it can be argued that prices between farmers' markets and supermarkets should be compared.

Another consideration is that price premiums for local produce might be highest at the very beginning and end of their peak local harvest season as they are less available at these points. Since the study was conducted in the middle of the peak local harvest season of each product, this theory was not tested.

The strongest indicator for the presence of a price premium would be from a comparison between a local and non-local version of the same product, at the same location, on the same day. This is a good indicator since it shows consumers' preferences and retailers' responses to these preferences when local and non-local products are sold side-by-side.

Unfortunately, adequate samples were found of both local and non-local versions of the same product being sold at the same location on the same day. Therefore the only such comparison that was possible was a comparison of price premiums observed for Ontario and Quebec products from outside of the local region compared to non-local products

[3] Products that are pre-washed and ready-to-eat are not comparable to products that need to be washed and trimmed before eating, because of the substantial amount of labour involved in washing and trimming produce.

from outside of the two provinces ("imported") in situations where both versions of a product were available at the same location, on the same day. Since the comparison of these two versions of products is not synchronized with the other analyses conducted in this study, the results of this analysis are included in Appendix D.

IMPLICATIONS AND OPTIONS

The literature review and the findings of the pricing survey provided information that is useful in developing strategies that will allow Just Food to promote and support more local food production and retail within Ottawa. This includes strategies to promote supportive policies with the local government, as well as strategies to promote and support local farmers in producing more food for local sale. This section looks at some of these possible strategies.

The main lesson learned from the pricing study is that, even though the reason for a higher price for most local food products is unknown, there is currently a price premium being charged for most locally grown products. Consumers' willingness to pay a price premium for local food (as indicated by the literature review) could be an incentive for farmers to want to produce more food for local sale. This would be particularly important if local farmers are poorly informed regarding their local marketing opportunities, or if these opportunities are restricted because of distribution issues.[4] Further, given consumers' interest in local produce, opportunities for local trade would likely increase if consumers were better informed regarding the origin of produce. This section outlines some possible strategies to promote local production.

Identification System

One finding of this study was that at the strictly 'local' farmers' market, where consumers are guaranteed that the products are from the defined local region, a higher price is being charged for the same products sold at the 'mixed' farmers' market, where such a guarantee is not made to consumers. This is despite the fact that the products compared were all from the defined local region. Therefore, it appears that some consumers in Ottawa are paying a higher price premium, for whatever reason, for food that is guaranteed local. This is possibly because people with strong preferences for local products are more likely to both be willing to pay more for local products and to shop at the 'local' farmers' market. Since the 'local' farmers' market provides a large selection of locally produced foods in one location, it allow consumers to save on shopping time and they would then be further willingness to pay more for the produce because of the time savings. To take advantage of this, a venue selling local food could take steps to ensure that such a guarantee can be made to consumers. Presently, the 'mixed' farmers' market cannot make this guarantee as local food is sold amongst non-local food.

Also, it appears that a higher price is being charged for products that are from the defined local region, rather than local in the general sense that they come from somewhere in

[4] Local farmers with small production may find it difficult to market to large grocery chains who buy produce in large quantities.

Ontario or Quebec, especially for non-organic products. This is apparent from the resulting price premiums, in that when prices of local food (excluding Ontario and Quebec products not in the local region) are compared to non-local food prices, there is a higher premium than when prices of all food produced in Ontario and Quebec (including the local area) are compared to non-local food prices (see Appendix B). Even food with the provincial "Ontario" label was not able to generate as much of a price premium as local food from a strictly local venue.

This finding is consistent with McCluskey and Loureiro's (2003) finding that state food agricultural labeling in the United States is effective in generating a premium only if there is a reputation built for the quality of that specific product from that state. As well, as a result of Brown's (2003) study, she concludes, "Rather than promote products based on the state in which they were grown, appealing to a consumer's loyalty to a smaller region should capture the interest of those who pay attention to, and care about, the origin of products they purchase."

To take full advantage of some consumers' preference and willingness to pay for local food as found from the literature review, there could be a system to identify these items more formally. One way is designating venues specifically for the sale of food from the defined local region. Morris and Buller (2003) found that in one region in the United Kingdom, local food products sold at distinct venues, such as farmers' markets and at the farm gate, could obtain higher sales prices.

Another way could be to develop some kind of local label for Ottawa that certifies farmers and processors who produce food from the defined local region. In the Region of Waterloo, Ontario, a 2003 survey revealed that 71.3% of residents would buy more local food if it were labeled so (Xuereb and Desjardins, 2005). Also, Pirog (2003) found that food business respondents indicated that more than 50% of their customers would be interested in a label that indicated product source, mileage from farm to point of sale, mode of transport, and environmental impacts in food transportation. On the other hand, the analysis of the pricing survey regarding the effects of location on pricing of local products suggest that it may be more effective to identify or create venues that carry local products than to label products, as a strategy to increase the consumption of local products. This is consistent with Zepeda and Leviten-Reid (2004), who found that conventional food shoppers sought out local food at farmers' markets and at farm stands, and that these venues seem to be more effective than "local" labels as a means of promoting local products amongst these shoppers.

An Emphasis on Quality

The majority of the studies looking at factors influencing the purchase of local food have found that consumers are attracted to local food primarily due to attributes such as

quality, freshness, taste, and nutrition and secondly, due to attributes such as supporting local farmers and the local economy. Likewise, the same reasons attract consumers to shop at farmers' markets. For example, Kezis et al. (1998) found that the most compelling reasons for consumers that were introduced to a farmers' market to return was, primarily, the quality of the products, and secondarily, to support local farmers.

These findings have a two-fold implication. First, in policy and marketing that attempts to promote local food to consumers, the attributes of quality, freshness, and taste should be the primary emphasis in order to benefit from consumers' inclination towards these attributes. For example, Zumwalt's (2001) findings led to the recommendation that locally produced food should not be marketed merely as "locally grown", but that other attributes such as taste, quality, and nutrition/healthiness should be used to convince consumers that it is worth a price premium.

The second and equally important implication of the factors influencing the purchase of local food is that the maintenance of quality should be emphasized for local products and with local farmers. This is in response to the findings that not even consumers with a high level of interest in local food are very willing to forgo on the importance of attributes such as quality, taste, and freshness. This is consistent with Loureiro and McCluskey's (2000) finding that local and regional labels are only an effective signal of quality only in combination with other indicators such as taste and freshness. As well, even though consumers interested in local food place a high value on their purchase supporting local farms, they would be unlikely to purchase the produce a second time if it were not fresh, tasty, or of high quality (Pirog et al. 2001 and Tregear & Ness, 2005).

Looking more specifically at farmers' markets, Brown (2003) found that consumers perceived that these farmer-direct venues provide a quality product that perhaps deserves a price premium, but in order to successfully market local products at these venues, local products must be of higher quality than what would be found at a supermarket. This is consistent with Kezis et al.'s (1998) conclusion that consumers place relatively low importance on product pricing at the farmers' market, and perceive the products as having a high enough quality to warrant paying a premium.

The findings of the pricing survey indicated that currently local products in Ottawa are of higher quality. It is very important that this association is maintained. Farmers at the market which Kezis et al. (1998) had studied had successfully created a quality image of their products and this image had become the single most important draw to consumers. The authors pointed out that, consequently, these high product standards must be maintained with diligence. By maintaining it, vendors can feel confident about pricing their products to reflect the product's superiority.

In order to maintain high standards for local food quality at a farmers' market, Tregear and Ness (2005) suggest the setting and monitoring of standards of producers' products and marketing activities, and the encouragement of quality improvements and sharing of

best practices through a farmers' market association. Quality assurance programs could be key to ensuring local food maintains its association with high quality. A quality assurance program can be incorporated into a possible local label certification system.

Information Sharing

The information presented in this paper, specifically regarding consumers' willingness to pay for and factors interesting consumers in local food, as well as the presence of price premiums in Ottawa for local food, are useful to local farmers and the local government. This information could be presented to these groups through briefing notes, presentations, and brochures. This information could help decision-makers in their local food policy decisions, and it could help farmers in their business and marketing decisions.

Further Research

There are major knowledge gaps regarding local food markets and preferences in Canada, Ontario, and the City of Ottawa. These knowledge gaps need to be addressed through investment in and support of further research. Most importantly, research needs to be conducted in order to determine the causes of the price premium currently associated with many local products. This would allow the sector to better position itself. Studies that could contribute to this could be a willingness to pay for local food study conducted of Ottawa residents. As well, studies to determine supply side issues need to be undertaken.

In addition, it would be beneficial to repeat a similar pricing study in 2 to 5 years, using the findings of this study as a baseline. Further research needs can be guided by the comprehensive set of studies undertaken by the Region of Waterloo Public Health. These include an evaluation of the effectiveness of their Buy Local! Buy Fresh! Map, a tool used to promote local farms. The equivalent of this in Ottawa would be the Ottawa Buy Local Food Guide. Waterloo Public Health also undertook a study to determine the amount of land in the region that will be required to grow food to meet the nutritional needs for the municipality's population. They also studied the environmental implications of food imports into the region and urban agriculture activities in the municipality, as well as conducted a food flow analysis and an economic impact study of the agriculture and food-related sectors in the region.

CONCLUSION

This paper has provided information that can be used to promote more local production with local farmers and better supportive policies with the local government in supporting increased local production. This in turn has contributed information towards serving Just Food's goal to "strengthen the local agricultural economy and increase access to locally grown food for all". Towards this end, the pricing survey has explored whether locally produced food in the Ottawa region is being sold at a price premium and the literature review has explored consumers' willingness to pay a price premium for locally produced food and what factors influence consumers to purchase local food. Although conclusions cannot be drawn regarding market dynamics through the findings of the pricing survey, this information can nevertheless provide insightful information to local farmers and governments.

The findings of previous studies as discussed in the literature review indicate that consumers in many parts of the United States and United Kingdom are theoretically willing to pay a price premium for locally grown food products. Previous studies have also shown that consumers attribute locally produced food with certain special traits such as freshness, taste, quality, as well as supporting local farmers and economies.

The findings of this study have demonstrated that, with the exception of certain products, there is generally a price premium associated with locally grown food products. This is especially so when local products are sold in a manner that guarantees to consumers that the product is grown within a defined 'local' region. This second point can be concluded from the finding that local products sold at an exclusive local venue display a distinctly higher price premium than those same products sold at a venue where local and imported products are sold side by side and are more difficult to differentiate. The findings also indicate that consumers do not pay premiums for the quality of a specific product, but instead they do so by shopping at venues more likely to carry local products, which seem to also charge higher prices for their products.

Several strategies could be used to promote and support more local food production and retail within the City of Ottawa. Local products could be made more distinguishable for consumers through a local food certification system or designated local food venues. Also, since it has been shown that consumers associate local food with high quality, efforts could be made to maintain this association through some type of quality assurance program for locally grown food. Information regarding local food systems could be shared with local farmers and governments in order to guide them in their decision making. Finally, further research could be conducted in order to further understand the dynamics of the local food system in Ottawa.

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APPENDICES

Appendix A

This table is extracted from Miedema (2006). The original study only included data in the "Location of Origin" columns, and did not include a calculation of price premiums comparing the local and non-local produce, as has been done for the purpose of this study. The study found that though there is no strong pricing trends across the 11 studied products for the audited vendors, in general, imported produce was priced either as low as or lower than Ontario and Waterloo Region produce. Also, there was no relationship between the price of Waterloo Region produce and Ontario produce.

Prices of Produce with Different Origins Sold in Waterloo, Ontario

Product	Location of Origin			*Premium*
	Waterloo Region	Ontario	Imported (outside Ontario)	*(comparing most local to least local product)*
Asparagus	$3.31/kg	$5.94/kg	n/a	*-79.46%*
Strawberries	$2.72/L	$1.73/L	$2.52/L	*7.35%*
Leaf Lettuce	n/a	$0.95/bunch	$0.77/bunch	*18.95%*
Sweet Corn	$2.50/doz	$3.06/doz	n/a	*-22.40%*
Field Tomatoes	$0.99/L	$1.32/L	n/a	*-33.33%*
Carrots	n/a	$1.46/kg	n/a	
Bartlett Pears	n/a	$3.40/kg	$3.41/kg	*-0.29%*

White Potatoes	$0.66/kg	$0.51/kg	n/a	*22.73%*
McIntosh Apples	$1.52/kg	$1.69/kg	n/a	*-11.18%*
Butternut Squash	$1.76/kg	$1.57/kg	n/a	*10.80%*
Pumpkin	$4.13 each	$3.31 each	n/a	*19.85%*

Appendix B

Price Premiums of Local and Ontario/Quebec Products Compared to Non-Local Products

Product	Non-Organic			Organic		
	Both Weeks	Week One	Week Two	Both Weeks	Week One	Week Two
Apple	N/A	N/A	N/A	N/A	N/A	N/A
Arugula	-74%	-68%	N/A	33%	7%	83%
Basil	-55%	-78%	-35%	N/A	N/A	N/A
Bean	87%	97%	70%	16%	39%	N/A
Broccoli	-12%	-3%	-19%	32%	31%	20%
Carrot	54%	75%	20%	32%	61%	22%
Corn	38%	N/A	44%	-8%	N/A	-34%
Cucumber	N/A	N/A	N/A	9%	N/A	-53%
Garlic	241%	198%	N/A	303%	269%	329%
Lettuce	0%	15%	-46%	-58%	-38%	N/A

Pea	N/A	N/A	N/A	N/A	N/A	N/A
Pepper	5%	3%	7%	10%	19%	19%
Potato	52%	25%	72%	N/A	N/A	N/A
Spinach	-18%	5%	-22%	10%	N/A	-5%
Squash	26%	4%	49%	56%	27%	70%
Strawberry	31%	36%	25%	50%	35%	89%
Tomato	4%	5%	3%	N/A	N/A	N/A
Zucchini	48%	76%	4%	N/A	N/A	N/A

Appendix C

The following table shows the significance of the results of the price findings from the pricing survey. The data for non-organic beans, non-organic and organic broccoli, non-organic corn, non-organic and organic garlic, and non-organic potato were statistically significant.

Tests of Significance for Calculated Premiums

Non-Organic				Organic		
	Difference*	*p*-value	Premium	Difference[a]	*p*-value	Premium
Bean	0.382	0.00	107%	0.205	0.61	23%
Broccoli	-0.033	0.52	-10%	0.135	0.21	32%
Carrot	0.151	0.02	69%	0.163	0.02	56%
Corn	1.215	0.05	41%	-2.113	0.28	-26%
Cucumber	N/A	N/A	N/A	-0.065	0.87	-15%
Garlic	1.281	0.00	241%	2.662	0.00	403%
Lettuce	-0.007	0.99	0%	-1.519	0.06	-58%
Pepper	0.028	0.73	11%	-0.105	0.44	-16%
Potato	0.301	0.00	131%	N/A	N/A	N/A
Squash	0.061	0.13	39%	0.046	N/A	27%
Strawberry	0.119	0.06	22%	0.356	0.00	50%
Tomato	0.097	0.21	34%	N/A	N/A	N/A
Zucchini	0.139	0.13	64%	N/A	N/A	N/A

[a] The difference is in the price per 100g, except for corn, where the difference is in the price per dozen.

Appendix D

Ontario/Quebec (outside of the defined local region) and Imported Versions of Products Sold at the Same Location on the Same Date

Product	Location	Price Premium
Broccoli	Supermarket 2	-6%
	Supermarket 1	-10%
Carrot	Supermarket 2	146%
	Smaller Chain Produce Retailer	-62%
Corn	Supermarket 2	60%
Cucumber	Health Food Store 1	51%
Garlic	Local Farmers' Market	257%
Pepper	Supermarket 3	0%
Potato	Supermarket 3	-56%
	Supermarket 2	26%
	Supermarket 2	-24%
Spinach	Supermarket 1	1%
	Supermarket 1	23%
Strawberry	Supermarket 2	0%
	Mixed Farmers' Market	-23%
	Mixed Farmers' Market	3%

Tomato	Supermarket 2	-42%
	Supermarket 2	-42%

Where the same product is listed twice, the first row indicates a comparison during week one, and the second row indicates week two of the pricing survey.