Ethno-Cultural Vegetable Retail Analysis: Pricing, Structure and Market Information

by

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ABSTRACT

ETHNO-CULTURAL VEGETABLE RETAIL ANALYSIS: PRICING, STRUCTURE 
AND MARKET INFORMATION

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This thesis investigated the retail market for ethno-cultural vegetable in the GTA and Guelph focusing on Chinese, South Asian and Afro-Caribbean. Price structure and marketing strategies were studied using survey data. Both qualitative and quantitative data was collected on a bi-weekly basis over three seasons in ethnic and mainstream stores.

Analysis using SPSS revealed vegetable prices were not always lower in mainstream stores. The study showed that ethno-cultural vegetable pricing was controlled by the cheaper mainstream stores with some ethnic stores having to adjust their prices to meet those of the lower mainstream stores. The quality of ethno-cultural vegetables was also found to be poor across stores with poorest qualities in ethnic stores, a fact attributed to poor facilities. Finally ethnic stores were better stocked with ethno-cultural vegetables. Ethnic stores are important in the supply of ethno-cultural vegetables but are not well organised to face the retail competition hence the need to improve.
Acknowledgement

While the information and errors in this thesis are the responsibility of the author, an incredible number of people contributed to its creation, shaping and success. It’s on this note that I acknowledge without any reservations their unconditional and invaluable assistance.

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Chapter One: Introduction

Background of the study

The food retail system has undergone major changes over the decades as more players have joined the system and more traditional retailers exited the business replaced by larger supermarkets (Sharkey & Stiegert, 2006). These supermarkets ran by giant corporations were initially involved in manufacturing, shipping, processing and conveyors of food but today are leading in the food retail industry (Patel, 2010). The changes have been triggered by among others, an increased development in technology (King & Phumpiu, 1996), economic growth which has created increased competition, increased international trade and a change in consumer preference (Zafiriou, 2005; Guy, 1994). All these factors have led to a constant push for a more organised, efficient and demand driven system and as a consequence, there has been an escalated use of technology such as computerisation, barcodes and outlet self scanning (Ellickson, 2011; Patel, 2010; Park & King, 2007) which have enabled more work to be done in a shorter time and with less staff. Computerisation has also made it quicker and easier to interact, network as well as price matching. With development in technology, the pervasive push for efficiency and effectiveness has led to the surge in the number of larger chain supermarkets (Chen et al., 2005).

With introduction of supermarkets, the retail formatting and stocking has undergone transformation from small narrow room stores with limited products to more advanced self service stores with a range of consumer services and an array of products (Ellickson, 2011) that enables a one stop shopping of all required items yet organised to allow for convenient self service (Patel, 2010). The self service has allowed for a reduction in overhead charges while creating an increased prosperity to shop as self service entices people to select more vegetables
which otherwise they would not have selected with an intermediary (Patel, 2012). According to Ellickson (2011), the initial stores were typically family-owned, where a family owned either one or a few stores specialising in a few items. These were much smaller with a smaller focus on products and closer to the community. The small family owned stores had a supply chain characterised by numerous middlemen and less controlled prices whose sequential effect was high costs on the final products. Introduction of supermarkets saw the establishment of self delivery of products to by-pass middlemen thereby reducing delivery costs, there was also production of their own products, investment in quality control and as a result ability to offer cheaper, fresher and high quality products (Ellickson, 2011). The reduction in costs has prompted supermarkets in the last few years to spread out from exclusively wealthy urban areas to embrace the smaller rural cities. Apart from reduced costs the spread-out of supermarkets has been encouraged by increasing numbers of consumers whose conditions have improved such as increased disposable income, improvement in storage, where freezers were more commonly used therefore consumers were able to buy in bulk and store their fresh produce longer, this was further simplified by improvements in transportation which saw an ease in movement of purchased produce (Ellickson, 2011; Traill, 2006). The supermarkets therefore continued growing and adjusting to meet the constant changes in consumer demands, and for traditional stores to survive the competition it was imperative for them to conform to the new system.

The constant pressure faced by supermarkets to strategise and innovate, in order to overcome competition eventually led to the consolidation of economic powers. This was done through mergers (Huang & Stiegert, 2009) and technological advancements to what today are the chain supermarkets (Ellickson, 2011). Supermarkets eventually advanced by the introduction of food retailing. The food retailing then got combined with general mechanisation and has since
seen many chain supermarkets enter the food retailing (Sharkey & Stiegert, 2006). In Canada food was originally sold by small specialty stores such as butchers, bakery or dairy store. In these specialty stores particular items were sold and consumers had to visit various places to meet the needs of the household shopping. Today we have non traditional food retail stores like large supermarkets which have exploded the market taking over the traditional food retail system. The entry of chain supermarkets into the food retailing resulted in the erosion of the smaller supermarkets and specialty retail stores with a weaker economic power (Stiegert & Kim, 2009).

The erosion of smaller stores by the large chain supermarkets has also been partly a result of the change in consumer preferences and expectations. Stringent consumer demands for quality, efficiency and timeliness especially on fresh food such as fruits and vegetables, meats, fish, sea-foods and dairy (Meuerink & Roza, 2007) have continued to keep retailers on their toes to constantly innovate to meet the changing values of their clienteles. Improved technology has made it more possible to improve innovations in communication, networking and distribution methods among large supermarkets. Large supermarkets have also been fast at assessing the market, studying shopping trends and thus adjusting their business with a stronger focus on market demand and consequently drawing a large number of consumers (Huang & Stiegert, 2009). The effect of globalisation which promoted international trade and therefore enabled access of larger multinational corporations into the market further affected small retail stores (Goldman et al., 1999).

Trade liberalisation and global trade has allowed for equal trade opportunities and competition and has opened doors to non- traditional food retailers in the food market with many traditional retailers being replaced by larger chain supermarkets (Goldman et al., 1999). This has
changed the face of North America and Western Europe, where modern retail outlets now dominate the food retail system (Chen et al., 2005) and all other retail systems have modified their format to match the modern outlets. The food market has undergone tremendous changes from the traditional small retail stores to more coordinated supermarkets with the larger chain supermarkets dominating the market. The shares of chain supermarkets in the food industry have steadily increased gaining a substantial portion of the retail food market and controlling the food system with a strong influence so that the share going to the traditional stores has progressively fallen from 82% to 69% in the period between 1998 and 2003 (Leibtag, 2006). The fall in market shares has been due to the high competition among the food retailers, where high standards set by the market for quality; quantity, safety, and timing has been met through mergers and other forms of growth and adoption of market oriented and driven production systems that target the needs of the consumers (Boehije, 1996). In merging, supermarkets have been able to deal in procurement systems that are based on contractual arrangements with specialised large scale producers. They have also adopted standardized practices and centralized marketing and purchasing which have seen them take advantage of economies of scale thus translating into lower costs and presumably higher profits (Ellickson, 2011). Kinsey & Senaver (1996) quote an average operating cost of about 21.8% of sales in an average grocery retail store while Wal-Mart had an operating cost of 17.5% of its sales.

Although small scale producers may try to compete in this system, they may not be completely capable of fully exploiting these opportunities as they are disadvantaged by the volume of their procurements. For this reason supermarkets dealing with large scale producers have dominated the supply chain out-competing the traditional small supermarkets and speciality
stores (Chen et al., 2005), a situation that has continued to raise concern over the power imbalances between the chain supermarkets and the traditional retailers.

With lower business costs it has been possible for chain supermarkets to sell their produce at lower prices. These stores have a well developed store format and according to Leibtag, (2006), the store’s format such as the physical characteristics, product offerings, business practices, and marketing strategies contribute to food price variation. Introduction of chain supermarkets has therefore magnified the variation in retail food prices, due to the difference in labour costs, operating costs, and wholesale cost and the competitive environment in which one operates. Entry of the supermarkets into the food retail system has led to food price reductions with prices usually considered to be lower in chain supermarkets than many smaller retailer stores (Leibtag et al., 2010; Kaufman, 1999; Kaufman et al, 1997). Chain supermarkets have also improved food accessibility through improved stocking, increased consumers’ options for food accessibility as they stock a large assortment of high quality goods with a wide mix of product varieties than is at the small retail stores (Leibtag, 2006). The growth of these supermarkets has continued to raise concern over the power imbalances between the chain supermarkets and the traditional retailers (Chen et al., 2005). The aggressive improvement in store services and price reduction by large supermarket continues to pose a threat to the small retailers which are operating under a higher cost environment. With low prices offered by chain stores, some small retailers have also been obliged to conform by lowering prices. Reduction of prices, in a high production cost environment would not be an appropriate solution for small retailers.

Pricing is an important strategy in the running of a business aimed at generating revenue, maximizing profits and promoting sales-growth through targeting a price which will increase sales (American business, 2010). However with the differences in costs faced by different
retailers, it is not easy coming to price uniformity. Therefore a number of factors have to be considered before one sets a price for their commodities and some of these may include the target market, product- and- service assortment and competition for similar products. In the retail food market, where the balance seems to favor the chain supermarket, it is important to see how one capitalizes on price to create profits without losing customers. Retailers have done this either through use of low prices in the form of deals, discounts or promotions on some items to attract clients while selling the rest at higher profit margins what has been termed the Hi-Lo strategy or the everyday low pricing (EDLP) tactic where the EDLP gives consistently lower prices everyday creating a price stability (Hoch et al., 1994). In the Hi-Lo strategy, promotion prices may go below the EDLP with the aim of attracting consumers and consequently increase traffic for other produce. EDLP seems to have a good impact on capturing consumer attention and it uses less labor compared to the Hi- Lo strategy which requires changes in price displays with every change in promotions. However EDLP will benefit retailers with low costs and with advertising (Hoch et al., 1994). And it is the large supermarkets that are likely to benefit from use of the EDLP as their costs are reduced due to the large scale operations compared to the traditional or specialty stores. In his study, Hoch et al., (1994) found that EDLP made big losses of up to 18% for retailers and was only profitable when retailers had low costs. As a result many retailers have adopted the Hi – Lo strategy due to its ability to price discriminate among uninformed consumers (Varian, 1980) while using the low price to attract traffic (Narasimhan, 1988). Other retailers have adopted the category-level EDLP where only selected items are used for EDLP and these work as the attraction of traffic. With the category-level EDLP the margin of loss is minimized as not all the produce is sold at low prices. Other strategies used by retailers
have included use of money-saving coupons and shopper-reward programs to attract and maintain clientele (Kotler & Kevin, 2009).

Apart from having low prices to attract customers, it is important to determine the right price to maintain profits. Price determination used to be done through direct clientele observation and understanding shopping habits. There has been a shift in approaches used to determine prices from the cultural way of using experience to a technology based approach. Price setting can now be done using technology enhanced approaches such as the price optimization software which predicts consumer demands on a given product based on price history, sales data, competitive pricing and local demographic inventory and promotional data this technology also manages prices for seasonal items (Bolton et al., 2010).

Having looked at the two approaches of setting price and the technological advancement in price determination, it seems apparent that retail stores working in a high cost environment and low technological advancement may not stand a chance in the competitive retail system. For these stores to co-exist, other strategies have been used that do not focus on price alone. Hoch et al., (1994) emphases that price alone will not drive a business.

To survive this competition, traditional retailers have distinguished themselves through expanded numbers, quality and types of products offered, increased number of services provided, designed new formats, and improved in-store technologies, increased sales of speciality foods such as organic foods, natural foods and locally grown foods (USDA, 2011). These have also targeted consumers who are less interested in the larger scale format and more interested in local shopping experiences with more of a focus on one-on–one customer service. However some of these traditional retailers especially the speciality stores are still diverse, fragmented and less
flexible to respond to market conditions and needs. They are also still disadvantaged in that a focus on specific food categories like fresh produce (meat, dairy, fish, ethnic foods), or a particular customer segment may discourage the time-bound consumers who may want to pick up most of their grocery at a one-stop (USDA, 2011) shopping thus the option of specialty stores would be limiting their choice.

**Problem statement**

A lot of work has been done on the possible differences in food prices between traditional and non-traditional retailers with interesting finding. According to Leibtag et al., (2010), Kaufman, (1999) and Kaufman et al., (1997), large chain retail stores had relatively lower food prices compared to small traditional stores and Freeman (1991) showed that city dwellers especially the poor paid more for groceries in inner city neighbourhoods yet received poorer quality foods and service. On the contrary, other studies have shown that sometimes prices of some selected items in a retail store were cheaper in a small traditional store than larger chain stores (Volpe & Lavoie 2008; Leibtag 2006). A lot of this work has focused mainly on foods such as meats, dairy products, fish and processed foods (Sharkey & Stiegert, 2006), with little or no attention given to prices of ethno-cultural (ECV) vegetables in particular. This study therefore looked at the differences in prices of ECV between the mainstream (large chain supermarkets) and the smaller traditional (speciality) retail stores.

Another factor that was studied was the effect of season on ECV pricing in the GTA. Canadian vegetable production is constrained by weather (AAFC, 2007). For Canada to maintain its vegetable supply, it has had to produce in the short favourable season, process and store for off-season, use high cost greenhouse production supplemented by importation (FCC, 2006). Because of the short supply during the bad weather and due to the high cost of
production involved in use of greenhouse Canadian vegetable market enjoyed premium prices for its vegetables. Improved technology, enhanced transportation, superior storage facilities coupled with the increased international trade have made it possible for an all year round supply of fresh vegetables (USDA, 2004) in countries where originally deemed impossible. The multinational corporations involved in vegetable trade have made prices lower through large scale handling. The impact of increased vegetable importation on the Canadian vegetable market has been making seasonality a non-issue as it has off-set the once enjoyed premium prices (FCC, 2006). Although vegetables are imported into Canada all year round, multinational corporations are only able to import a limited number of vegetables, leaving some of the vegetables to other supply chains thus the cheap vegetables all year round which were a result of the multinational corporations may not be fully guaranteed on all the ECV, so the necessity to depend on the production in Canada where possible.

With differences in supply chains it would be interesting to find out how this affects pricing of ECV during different seasons. Little information is available on how ECV pricing has varied over season with the on-set of international trade that allows for the concurrent running of supply chains of the local (affected by season), large corporation importation (cheap all year round) and the small scale vegetable importers.

This study focused on the difference that exists in fresh vegetable pricing between the chain supermarkets and speciality retailers, and how this pricing varied over the production season. The study also investigated any other avenues explored and exploited by retailers to maintain their clientele, such as store structure and service provision.
Research goal and objectives;

**Goal:** The goal of this research is to study the market structure, strategies and pricing of ECV at the retail level and identify factors that influence client selection of retail store for ECV purchasing.

**Objectives**

1. To develop a conceptual framework on factors affecting ECV consumption.
2. To examine price trends and availability of ten ethno-cultural vegetables over three seasons in eight retail stores in the GTA.
3. To examine price trends and availability of ethno-cultural vegetables over three months (summer) in two main-stream stores in the city of Guelph.
4. To identify factors that influence selection of ethnic retail store for the purchase of ECV in the GTA.
5. To assess service provision, store structuring and marketing strategies in eight retail stores in the GTA.

**Significance of the study**

The advancement in the food retail market that saw an increment in large chain supermarkets led to an improvement in food stocking and reduced costs and hence lower prices and better quality foods in large chain supermarkets than small retail stores (Leibtag et al., 2010). Although an important food for the 1.2 million immigrants, (Statistics Canada, 2006) many of whom are either low income earners or struggling with settling down, ethno-cultural vegetable (ECV) stock remained minimal in large chain supermarkets and were more available in small retail stores that are presumed to have higher prices (Leibtag et al., 2010) therefore less
affordability for those that require them. Given the size of the immigrant population in the GTA, ECV demand remains high (Filson et al., 2011) yet the consumption is influenced by demographic factors such as economic status, age (Adekunle et al., 2010), and price of vegetable (Powell et al., 2009) among others.

Results from this study will help me understand the ECV market structure. I will be able to conclusively determine whether there is a price difference between large chain supermarkets and small ethnic stores. I will further find out whether ECVs are equally available in both mainstream stores and ethnic stores and if not what impact these differences may have on accessibility and affordability of ECV to the population that need them. This information will be used to aid policy makers’ understand the importance of ECVs to the 1.2 million immigrants highlighting the opportunities that exist in investing in ethnic retail stores. With these results I hope to make it clear to policy makers the danger of losing ethnic stores to the larger mainstream stores as mainstream stores may not be able to completely meet the needs of ECV consumers. I am hoping that these results will be a wakeup call to policy makers to help ethnic store owners develop better marketing strategies that will enable them survive through the stiff competition.
Chapter Two: Understanding vegetable production in Canada

Food production patterns in Canada

Food production patterns in North America have undergone tremendous changes with a shift to a more mechanised intensive production (AAFC, 2007). Agriculture in Canada has undergone a transformation with the number of farms reported decreasing while the farm sizes are increasing as more farmers embrace mechanised agriculture and take on mass production (Filson, 2011). Vegetable production in Canada is mainly in Ontario, British Columbia, Quebec and Alberta with Ontario and BC accounting for 90% of Canadian production (BC Fact sheet, 2003). Ontario has 56% of Canada’s arable land (Hofmann, et al., 2005) much of this within the Toronto outskirts. Although Ontario is blessed with fertile arable soils and produces large amounts of vegetables, vegetable production has been limited due to the temperate climate (Hofmann, et al., 2005) which does not permit production of certain vegetables in cold seasons, let alone production of tropical vegetables. Ontario and Toronto in particular has therefore had to depend on the import industry to supplement its supply during the off-season ensuring an all-year round supply of vegetables (Lister, 2007).

Growth of the import market and hence change in food patterns in Canada have been attributed to the global market competition created as a result of globalisation fuelled by the American free trade agreement and the General Agreement on Tariffs and Trade (GATT) and more recently the World Trade Organization (WTO). Globalisation has led to the inception of global markets and the driving force for comparative advantage which includes growing seasons, labour markets, processing facilities, and operating capital (NASS, 2002) have left countries like Canada dependent on imported fruits and vegetables while concentrating on mass production of grains such as wheat and barley for export.
Production patterns have also been influenced by the increased number of immigrants who have introduced cultivation of their home vegetables in Canada. Toronto continues to be one of the major producers of vegetables with some farmers in the GTA venturing into production of ethno-cultural vegetables (ECV), done mainly by immigrant farmers or the new generation farmers (FHAC, 2000). Some ECV have been successfully grown in places like the Judy’s Tropical Garden in Vaughn and at other places including the Holland Marsh, Niagara and north of Lake Erie in the “tobacco country”. ECV are grown either for commercial purposes or in backyard gardens for home consumption. Ethno-cultural vegetable (ECV) cultivation has been possible for a limited number of vegetables such as okra, eggplants, hot peppers, amaranths in a given time frame due to the challenges posed by the weather.

Most of the local ECV production in Canada involves limited mechanisation, high cost methods on small fragmented pieces of land because of the farmers involved in this trade own relatively smaller pieces of land with less mechanisation. Large scale vegetable production on the other hand is mainly done by the older generation wealthier farmers who own comparatively larger pieces of land and are highly mechanised. The latter tend to be of European descent and usually lack an acquaintance with the types of vegetables desired by recent immigrants from Asia, Africa, the Caribbean and Latin America. This group of farmers are also highly involved in use of chemical pesticides and fertilizers which have been highly criticised by environmentalist as not environmentally sustainable. The growing concern about eating safe food and maintaining a clean environment through less use of agricultural chemicals such as pesticides, herbicides and fertilizers has promoted the increased demand for local and organically grown vegetables.
Organic vegetable production

Organic farming focuses on high production while preserving the environment through minimizing soil degradation, reducing pollution, optimize biological productivity and promoting good health. Organic farming involves farming without use of chemical/synthetic pesticides, fertilizers, genetically modified organisms, antibiotics and growth hormones (Martin, 2009). The global market for organic foods is on the rise with a more substantial increase in fruits and vegetables which comprised the largest sector within the total European Organic food industry (Oraman & Umankitan, 2010), also most purchased organic foods in California (Jolly et al., 1989) as well as most purchased by Canadians (Hay, 1989). Certified organic farming has been practiced in Canada for the last two decades, it comprises of about 5% of the total farms accounting for 1.5% of commercial area under cultivation (Parsons, 2005). Organic farming is generally done on smaller farms although larger commercial farmers are developing. Because of the small area of production coupled with lower yields due to limited use of chemical fertilizers and pesticides, organic vegetables contribute a small percentage of production (Parsons, 2005).

The interest of eating organically grown vegetables has steadily increased with the heightened health concerns of the amount of chemicals associated with vegetable mass production. Today’s consumers are not only health conscious but are also interested in the role of food in maintaining the environment. Consumers’ preference is therefore for vegetables grown with less use of pesticides, hormones and fertilizers (Miles & Frewer, 2001), as these contain less residential agricultural chemicals (Buzby & Skeus, 1994) and pose a lower health risk.

Much of the organic produce is sold direct to consumers through farmers’ markets but there is also an increasing trend of sales to chain supermarkets and restaurants. The direct sale of
produce to consumers has maintained the farmer – consumer connection enabling the consumers to know the source of their food while reducing transportation costs and the environmental problems attached to vegetable production and transportation. The expansion of the Canadian organic market is very slow (Parsons, 2005). With the increased demand coupled with a slow expansion of organic vegetable acreage, more consumers are willing to pay a premium price for organic produce, creating a potential niche market in this area.

As promotion for locally produced but also environmentally friend methods intensifies, concern about food miles and therefore carbon pollution related to food importation increases. Consequently the heightened advocacy for eating local, organically grown and functional foods that will help prevent disease (Heasman & Mellentin, 2001) while protecting our environment and sustaining the economy.

Like the organic vegetables, local ECV production has remained on a small scale yet the demand for these continues to increase creating a possible niche market opportunity as more people continue demanding for ECV. Donald and Blay-Palmer (2006), reported a continued growth of creative foods in the urban centers especially the greater Toronto area (GTA) while Lister (2007) talks of the increased consumption of ethnic foods in the GTA, a trend in agreement with Filson et al., (2011) observation of the high demand for ECV. The expanding demand for ECV is attributed to the diversification of consumers and the consumers’ changing values and attitudes with a continued demand for safer, nutritional and more culturally acceptable foods. They continue to seek their culturally familiar vegetables for health, nutrition and to meet their cultural preferences. According to Filson et al., (2011) a potential monthly demand for ECV worth of 61 million dollars/month was reported among the South Asian, Chinese and Afro-Caribbean Canadians in the Greater Toronto Area (GTA). The increased
demand for ECV has influenced the food market and production system with a greater variety of ECV (Serecon management consultant, 2005) being introduced in the Canadian market.

**Values of locally grown ECV**

Locally grown ECV apart from providing for food, have increased crop diversification, reduced food miles thus less fossil fuel burnt and in turn less carbon emission. Growing ECV locally promotes farmland preservation and in so doing boosts rural communities through increased production and preserving rural heritage, cultural identities and solidarity (Ferrero, 2002). Locally grown ECV provide a source of livelihoods to local communities allowing for improved farm profitability, enterprise development, and sometimes a cheaper source of food (Wormsbecker, 2007). Conner, et al., (2009) further suggest that locally grown vegetables provide a source of fresh better tasting vegetables and increase the relationship between participants. However like other vegetables, some ECV which can be grown locally are still imported into Toronto.

Even if locally grown ECV are said to have benefited the community in numerous ways, and are said to reduce on food miles and hence carbon emissions, others have argued that locally produced vegetables may contribute equally to the danger of carbon emissions through local transportation, distribution and consumer transport (Mariola, 2008; Saunders et al., 2006). According to Hinrichs, (2000), food miles and hence CO₂ emission should not be viewed only in spatial relations but in terms of the volume transported in relation to the distance travelled. Mariola, (2008) further explains that many long distance importations tend to take advantage of economies of scale to counteract the local food miles. In other words imported vegetables are transported in bulk while local produce is transported in relatively smaller volumes therefore requiring more trips to transport an equivalent of the bulk imported vegetables. Duram &
Oberholtzer (2010) further elaborate that although food miles and its related CO₂ emission is relevant in advocating for locally grown vegetables, there is still much work that requires to be done on understanding ecological effects of local production. Duram & Oberholtzer argues that judgment based on food miles and CO₂ emission alone is narrow emphasising need to understand the gases emitted as a result of ECV local production in relation to green-house gas emissions. They stress the need to understand the effect of crop choice, transportation, post harvest methods, energy demands and the green-house gas (GHG) emissions in relation to local production noting that GHG are not only made up of CO₂ but of CO₂, methane and nitrous oxide whose cumulative effect have devastating environmental consequences and these may be produced as a result of vegetable production. Thus promotion of local production needs to be promoted with caution knowing that there may be some hitches that need to be addressed.

**Challenges for ECV production**

The vegetable market today is faced with new market forces where demand for large consistent supplies has created increased pressure on small scale vegetable producers. The relative small size of production reduces the chances for higher returns based on economies of scale that influence overhead costs. This has caused a gradual exit of the less capable small scale producers or called for a better organisation to be able to meet the supply. ECV producers have not been an exception to these challenges as many of these are grown on small scale, low mechanised production, making consistent supply a challenge and causing the continued out competition by importers and large scale producers who are able to meet the demands of consistency and quality supply (Hild, 2009). The local producers are faced with a stiff competition in a distribution system largely supplied by corporate distributors who deal with large scale producers and importers. While the local producers own small fragmented pieces of
land which do not favour scaling up and are only able to produce seasonally, the corporate distributors depend on large scale producers and importers who are able to supply in large masses all year round taking advantage of favourable weather conditions, economies of scale, and efficient distribution methods. This has enabled large international firms to heavily influence the mainstream supply chain. The requirement of high cost technology such as storage, hydro-cooling and off season vegetable production is cost prohibitive and may disadvantage local producers (Hild, 2009). However, these corporate distributors although may deal in some ECV, may not be able to supply many of the ECV demanded by the population, consequently leading to the development of numerous other supply chains to try and meet the ECV demand.

Lack of effective linkages with value chain partners and barriers in language and cultural practice (Hild, 2009) and the knowledge gap in cultivation of some of these ECV has further crippled local producers. There is a lack of technical knowledge on the farmers’ side on the agronomic practices, with little information on the pesticides and herbicides appropriate for ECV (Kelleher, et al., 2008) especially those of tropical origin. The immigrants involved in ECV production utilise past experience in growing these vegetables but faced with the differences in weather conditions and emerging pests as a result of environmental changes, the farmers have no support in terms of knowledge source, some local producers have had to contact their countries of origin for possible solutions to some of the agronomic challenges they face (producer, Brampton November 24, 2010 personal comm.). Although there are challenges still faced by local producers, research on ECV is being done by Simcoe Research Station (SRS), Muck Crop research Station and Vineland Research and Innovation Centre (VRIC). Research work on ECV growing especially the possibilities of ECV production in Canada is underway with the VRIC
reporting the success for the production of crops such as the Indian kaddu and the Chinese red hot pepper (VIRC, 2011). However, more work needs to be done on the pests and diseases of these vegetables. Furthermore, small scale ECV producers lack information on market accessibility and this is aggravated by the stiff competition due to lack of cooling facilities and inconsistency in production. ECV producers are also faced with the challenge of poor weather conditions and the severe seasons that do not favour growth of some ECV creating fluctuations in supply and inconsistencies in the economic returns which have been enhanced with supplies from areas such as Mexico, Dominican Republic and USA.

With a more health conscious, socially and environmentally sensitive population, there has been a continued move towards eating local with a promotion of local producers and distributors. With foods produced locally one would not only be assured of freshness and taste but of reduced carbon emissions, environmental sustainability, and an economically viable system with the assurance of the retention of the food dollar within the community (Heasman & Mellentin, 2001; Hild, 2009; Xuereb & Desjardins. 2005).

Consumer demand for locally produced foods is driving changes in favour of local food procurement which is evidenced through the constant growth in the farmers’ market (Hild, 2009). Local producers have however not been able to meet the accelerating demand for the locally produced vegetables as they face a myriad of issues in the complex market place. While some wealthier, better equipped large producers may have entered this market, there is still reluctance by the more traditional farmers who continue to grow their traditional crops (Gunst et al., 2010) partly because of their ignorance of the potential market in ECV but also lack of the necessary agronomic knowledge. With the increased demand for locally grown vegetables there
is increased opportunity for ECV producers as more people get more informed of the benefits of eating local.

**Agriculture, food and health policies**

The government plays an important role in the promotion of food production in the country through the policies, regulations and research funding (Patel, 2010). The production of ECV like many small scale crops has been affected by government policies and regulations that directly or indirectly favor mass production of commodity crops. This has been demonstrated through policies that promote international trade, research funding geared towards market crops and. The export market, as a result has driven the market with more land being opened up under large scale agriculture for export replacing other food crops (Patel, 2010). This has led to displacement of small farms with larger farms and deprivation of a source of livelihood to many small farmers. Apart from displacement of small farms, the kind of food produced has also been dictated by the export market. Although food production is dictated by government policies, these government policies are manipulated by powerful corporations. These corporations not only manipulate the policies but are part and parcel of the government system hence driving their interests from within (Patel, 2010). The government through promotion of globalization of agri-food system has altered healthy food availability and accessibility. Some of these agricultural policies have been driven by a few politically influential corporate interests rather than the needs of the farming communities (Patel, 2010; Memarsadeghi & Patel, 2003) and are more market oriented facilitating for increased production, processing and marketing with less consideration for sustainable health. With the increased pressure for global trade many countries have identified commodities where they have a comparative advantage and concentrated their production on these. Canada has been no exception, as its production and export for grains and
livestock have increased faster than that of other foods especially fruits and vegetables. Although Canada generally is able to produce a wide range of crops, Canada has focused more on quantitative rather than qualitative food production hence focusing less on healthy, nutritious and culturally acceptable foods. Records from AAFC (2011) show that grain production in Canada increased by 2% from 2010 to 2011 while pulse and special crop production decreased by 28% in the same period. Grain exports have also grown from 2.26 million to 4.20 million in the period between 2006 and 2010. More grain has been produced for export as Canada has continued to depend more on imported fruits and vegetables.

In spite of the Canadian policies through the Canada Food Guide advocating eating more fruits and vegetables, a small portion of our production has concentrated on vegetable production with the larger percentage left to commodity crops. Production of commodity crops has been influenced by the global trade that focuses more on production for export therefore Canadian production has focused more on foods where it has comparative advantage with the aim of minimizing costs and maximizing profits which has led to vegetables and ECV in particular being susceptible to neglect.

Intense marketing of unhealthy processed foods has outcompeted government information, education and advertising for health eating. Coupled with the perceived time constraint and the low prices of processed foods, unhealthy consumption of processed foods has replaced vegetable eating. The less financially stable immigrants and busy low income earners have been a target of concern as the vegetable of their choice are not likely to be the more accessible and affordable foods.
Importance of ECV

**Source of Food:** ECV are important as a source of food and also have social, economic and environmental benefits. ECV like other vegetables, ensure food security through provision of nutritional and healthier foods (World Health Report, 2003) than many of the alternative processed foods or foods sold in fast foods and restaurants. ECV are also a better source of nutrients compared to the high fat red meat, chicken and lamb that are consumed intensively in Canada. ECV have also remained important due to the continued craving of native foods by many Canadian immigrants. According to Filson et al., (2011), although Canadian immigrants in the GTA have been able to integrate to some extent into Canadian lifestyles, assimilation of the traditional Canadian diets have been the least affected with immigrants continuing to search for their home food. ECV are not only important to the immigrants but have also provided an appropriate alternative to those seeking variety and new sources of nutrients. ECV have added onto the food choices that the Canadians have to choose from (Donald & Blay-Palmer, 2006) and hence the constant exposure to the wide variety of ECV has enabled many Canadians to try out and appreciate these vegetables.

**Health and ECV:** The world is faced with an increased challenge of diet and nutritional related chronic diseases estimated about 60% of the 56.5 million global deaths in 2001 and this is expected to multiply further in the year 2020. (World Health Report, 2003). Diet plays a key role as a risk factor for chronic disease (World Health Report, 2003). The increased awareness of the risks related to diet and nutrition among the population has led to a gradual change in the food consumption trend among many Canadians with many more people preferring more plant products than animal products in their diet. Many Canadians are more health conscious as they select their foods, increasingly linking health, nutrition and diet therefore not eating only for
pleasure but interested in the benefits and risks attached to the foods they eat (Adekunle et al., 2010). A diet rich in vegetables has been reported to reduce the risk of cancer; lower heart disease incidences (Ziegler, 1989) thus prolong life expectancy. The current epidemic of obesity and the increase in the incidence of cardio-vascular diseases, diabetes and high blood pressure has had a profuse effect on the food consumption with the potential to promote the intake of healthier foods with low concentrated fat, low cholesterol and fewer carbohydrates such as vegetables (Paliyath, 2011). Vegetables are a food of first choice, because of their ability to provide complete food nutrition yet with low unwanted fats and cholesterol (World Health Report, 2003).

As they grapple with the changes in diet, immigrants are concerned about their nutrition and health (Koc & Welsh, 2001) and hence they make an effort to maintain the ECV they are used to eating. ECV provide a better option than animal proteins which contain high cholesterol levels and therefore increasing the risk of diseases (Adekunle et al., 2010; Paliyath, 2011). The health concerns of many Canadians have redefined their vegetable consumption as consumers become more aware of the risks associated with diet and the benefits of vegetable eating.

The increased interest in ECV has led to an expansion in specialty stores in urban areas especially Toronto (Donald & Blay-Palmer, 2006). Food preferences by many have shifted from animal products to more plant products that are produced in an environmentally sustainable manner and this has seen the growth in the demand for fresh, quality vegetables (Wolf, et al., 2005). ECV are being eaten not only for their nutritious value but also by adventurous Canadians trying out new/ exotic vegetables for medicinal and variety purposes.
**ECV as Functional Foods:** Functional foods are believed to have physiological benefits and ability to reduce risk to chronic diseases apart from the nutritional values they contain. ECV have also been used as functional foods where vegetables known to contain ingredients that manage diseases such as diabetes, and high blood pressure are growing in popularity. Canadians are continually interested in self-medication and disease prevention through food ingredients (Reynolds-Zayak, 2004). The secret of ECV as functional foods has long been known by the ethnic groups but has also been discovered by health conscious Canadians who are trying out some of these ethno-cultural vegetables. Vegetables like the bitter melon and garlic are known for being anti-carcinogen but also control other diseases; pumpkin seeds reduce symptoms of prostate enlargement (World Health Report, 2003).

**Culture and ECV:** Cultural values maybe expressed through different ways one being through material items such as food (Royce, 1982). Food has been used as a symbol of cultural unity, prepared and served on special functions and celebrations ultimately influencing attitude and practice and eventually food choices. Food is an intimate part of society and a key point of one’s sense of identity (Fischler, 1988) well elaborated in Jean- Anthelme’s quote of the 19th Century which says; “Tell me what you eat and I will tell you who you are”, implying the strength of food and cultural identity. Food choices, attitudes and preferences are developed, influenced and reinforced early in one’s life by the social and cultural setup and also by familiarity of food eaten and this makes the habit so ingrained and one of the most resilient habits in acculturation (Rozin & Schiller, 1980). Food preferences and familiarity are among the last cultural traits that one loses (McMichael, 1995) hence the continued search for ethnic vegetables by immigrants. According to Adekunle, *et al.*, (2010), ethnicity plays an important role in the food preferences. Many immigrants continue looking for the foods they were used to
eating in their home countries and although they may adapt to the new foods in their new environment, there is a craving for ECV and it is for this reason that ECV have rapidly entered the Canadian market. This is not to imply that culture and food preferences are static; to the contrary, culture and food in particular, is adaptive with adjustments occurring depending on the situation with which one is confronted. Vegetables consumed vary depending on one’s origin with some unique vegetables associated with specific cultural groups (Abdel-Ghany & Sharpe, 1997) yet other vegetables may be similar or closely related across cultural groups. As immigrants go through the process of acculturation and assimilation they try out various foods. In this process they experience both patterns of change to the foods eaten and resistance to some foods resulting from food preferences and familiarity. This may result in social distancing or integration (Capella et al., 1993) as immigrants take on substitute vegetables that are closely related to their own in cases where the familiar vegetables are unavailable.

**ECV and Faith:** Apart from being used as a source of food and nutrients, food in general and ECV in particular play important roles as icons of faith and a form of socialisation. Immigrants have been noted to retain their faith and practices when they move to new places and there has been an association between faith and the food eaten (Serecon Management 2005). Many ECV have therefore remained strong representations of important spiritual practices and festivals with specific vegetables prepared for particular occasions. Although foods eaten reflect the cultural background of the people eating the food, the reverse is true where foods eaten are also influenced by the culture such as some religions or traditions that prohibit the eating of certain foods. Among many communities, food restrictions play a major role in one’s conduct emphasizing one’s identity. ‘Kosher’ among the Jewish refers to lawful or permitted foods (Masoudi, 1993) while halal among the Muslims refers to the permitted foods and haram foods.
not permitted. Among Muslims, foods such as pork are prohibited while in the Hindu culture eating beef and sometimes pork is prohibited but vegetable eating is promoted (Dindyal, & Dindyal, 2004). These laws influence the attitude and behaviour (Delener, 1994) and hence eating habits of individuals (Blackwell et al., 2001).

**ECV and socialisation:** The benefits of ECV in our society are numerous, serving not only as a source of food, but also as a means of cultural and social integration. Food may be used as a form of socialisation when it acts as a uniting entity or an expression of ethnocentrism where it is used in the identification of “the others” (Avakian, 1997; Caplan, 1997). As a social entity specific vegetables may be served at ceremonies as a cultural symbol. Different vegetables may signify different cultural practices and are a compulsory component of a ceremony. Each ethnic group has its cultural food different from the other or differentiated by the cooking style (Caplan, 1997). Vegetables have also been used as a differing element where some cultures feel their foods are better than others considering foods from other cultures as less superior. This has led to both negative and positive effects where some vegetables although nutritious may not be consumed because they are considered an inferior food.

However many of these cultures and customs have been influenced and modified by the constant contact of the numerous cultures, modern practices and lifestyle. With increased exposure and integration of communities, there has been increased experimentation with new vegetables as people socialisation through sharing meals at homes or exotic restaurants. The cultural diversity coupled with the curiosity and adventurous nature of many consumers has led to the augmentation in popularity of exotic or ethnic vegetables in the Canadian market. And as a result ECV consumption has taken on a new trend of demand with its consumption being
influenced by a varying spectrum of factors among the population. The next chapter addresses some of these factors that have influenced ECV consumption.
Chapter Three: Understanding ECV consumption and retail market structure

Personal characteristics that affect ECV consumption.

ECV vegetable consumption has been influenced by a number of factors both direct and indirect. These factors have been divided into three categories to include personal characteristics, micro-environment and macro-environment.

A lot of research has been done on the influence of personal characteristics on food consumption and factors such as demographic characteristics (age, education and gender), attitude, perception, lifestyle, need for variety (Hamlett et al., 2008; Reynolds-Zayak, 2004; Morland, et al., 2002) ethnicity, and health concerns have been reported to dictate the actual foods one selects to eat (Adekunle et al., 2010). The more educated people tended to feed more on vegetables and less on animal protein substituting their diet more with the healthier vegetables. Women were also more likely to select a vegetable rich diet compared to their male counterparts as they were considered more conscientious of health repercussion. According to Hamlett et al, 2008, South Asian women who worked outside their homes in Britain were more likely to buy fast foods or shop in convenient stores. On the other hand, the much older consumers are often more health conscious (AFRD, 2004) focusing on low sodium, low fat, high nutritious easy to chew foods thus making vegetables a food of their choice; however their meals will depend on their economic position and the easiness to chew and digest. On the contrary, younger teens are usually less health conscious, eating more processed or ready to go foods and fewer vegetables, due to their lifestyle, attitude and the way they perceive food. With the Canadian population becoming much older, more ethnically diverse (Statistics Canada, 2001), and with busy work schedules, there is a serious concern about the issue of vegetable availability, accessibility and affordability to the population as these affect the utilisation and
absolute benefit of ECV. From this information we see that personal characteristics directly influence ones choice and preference for ECV which influence the demand for ECV which in turn affects the pricing and hence affordability and consumption of ECV.

**Macro environment and ECV consumption**

**Globalisation and ECV consumption**

Globalisation has had a major impact on vegetable availability through market liberalisation as new powerful players entered the system and free marketing of commodities accelerated due to the reduced tariffs (FAO, 2004). Trade liberalisation allowed for greater international trade and hence heightened non-traditional exports which saw an expansion of ECV in the Canadian market (Zafiriou, 2005). Conversely global trade encouraged increased global sourcing for fresh fruits and vegetables allowing access for exotic vegetables therefore raising the variety of vegetables (Zafiriou, 2005; Friedland, 1994) in the more developed countries enabling greater room for selection and modification of diet to meet health standards and satisfy personal needs and preferences. The food consumption trend in the GTA has been no exception as the constant changes due to globalisation led to a growth in the vegetable diversity allowing for the possibility of a wider choice (Lister, 2007). Globalization has therefore created to some extent an assortment effect on the population through transformation of production systems and consumption patterns (FAO, 2004). This has resulted in a culture that includes a bit of everything: local and global, old and new (Hall, 1990). Having said this, others have viewed globalisation as causing a convergence in food consumption patterns hence contributed to the narrowing down of cultural diversity especially the culinary diversity through the promotion of the American culture (Conversi, 2010) especially in some developing countries (FAO, 2004) where food habits are being narrowed to the McDonalds culture (Conversi, 2010). However,
Ken (2002) believes that in the face of globalisation, the robust diversity of human tastes are likely to expand other than narrow enabling a wider integration of choices and preferences. With increased convergence of consumption patterns and a wider integration of choices, globalisation and immigration have set a stage for a wider diversity in consumption allowing the in-flow of ECV.

**Food regimes and ECV production**

Food production and consumption patterns have also been affected by the international food regimes. According to McMichael (2009), three food regimes have evolved since the 19\textsuperscript{th} century with the first international food regime characterised by colonial masters influencing food production and therefore food consumption in the colonies. More food for export was produced which benefited the colonial masters. According to Friedmann and McMichael (1989) the second food regime revealed the US as the producer of excess food which was then transferred to developing countries often as food aid, temporarily often solving food crises but also undercutting indigenous farmers’ production as well. Finally the third regime incorporated the effect of free trade on agriculture, a situation which has opened up global food markets and allowed freer movement of foods. All these regimes have had a direct or indirect effect on food production and consumption and in some countries have been blamed for increased food insecurity especially in the former colonial countries and some developing countries. Food regimes have been viewed as being responsible for the reconstruction of the local people’s diet and the agricultural system as they concentrated on production for export (Friedmann, 1994) leaving the population depending on exported foods.
**Immigration and ECV consumption**

Coupled with the global market trade, the Canadian food production and consumption pattern has been modified by the increased number of immigrants of 1.2 million between 2001–2006 (Statistics Canada, 2006a). Migration in Canada has modified cultural traits especially with food consumption. ECV consumption has been influenced by the high population of immigrants which has led to high demand for improved food diversification (Adekunle et al., 2010) as they continue searching for the familiar vegetables from their homes. Immigrants usually maintain the structure of the diet as from their home countries (Burns, 2004) and hence a continued seeking of their familiar foods which has led to the introduction of even more and diverse ECV (Zafiriou, 2005). Although the newcomers in Toronto assimilate into the Canadian culture, the original eating habits remain deeply rooted in many of the immigrants. According to McMichael (1995) food preferences once established are deeply resistant to change and to some extent will adversely affect nutritional uptake in favour of the cherished tastes. The visible minorities have continued to seek their familiar vegetables and these are either locally grown in Ontario or imported. Immigrants have continued to access their ethnic vegetables through speciality stores and increasingly supermarkets but to a lesser extent. With more immigrants, especially from Asia and to a lesser extent Africa and Latin America, Canadian food values and attitudes have continued to change in turn directly impacting the types of food consumed and sold (Greddie, 2009; AAFC, 2007). Immigration has led to different arrangements for the importation of their original home foods which has resulted into the increased food diversification, increased distinct foods and the growth of speciality stores.

However, one has to realise that although immigrants continue seeking their foods, adaptation and acculturation to the local culture also occurs among these people therefore
influencing their consumption pattern (Hamlett, 2008), a phenomena that has been seen to be highly linked with females and the more educated than their counterparts (Glanz et al., 1994). As a result Immigrant diets are considered in the context of a globalised world where food choices are not limited to the social and cultural contexts of the country of immigration, or country of origin (Cook & Crang, 1996) but by a number of interlocking factors coming into play.

**Variety, selection and vegetable preference**

Increased immigration and globalisation allowed for the provision of variety which in turn enabled choice and creation of preference. There has been a diversification of vegetables in Canada and Toronto in particular over the years with the influx of vegetables from various native groups (Lister, 2007) obtained either through mass importation, individual importation or local production. This allowed the opportunity for selection among the immigrants. With more vegetable varieties there is increased option to choose from and therefore higher possibilities of diverse preferences, allowing for increased vegetable consumption (Bucher et al., 2011). Household members make choices based on their preference as influenced by the variety of ECV on the market. Increased variety and therefore preference has increased the demand for ECV which accordingly has affected the price of ECV and also led to increased utilisation of ECV. Consequently, increased demand and thus increased price of ECV has resulted in the challenge of affordability of ECV among some families which sequentially affects their ability to consume ECV.
Effect of season on ECV consumption

Vegetable consumption is also influenced by season (Uetrecht et al., 1999). The Canadian extreme weather conditions for long have limited its fresh vegetable production in some months leaving consumers dependent on processed vegetables, ECV availability and accessibility has been no exception to this seasonal fluctuations. For those ECV that can be produced in Canada, the production has been affected by extreme seasonal changes rendering many months largely unproductive except for occasional greenhouse production of a few vegetable types. According to Uetrecht more vegetable consumption tended to be related to season with more vegetables consumed in the growing season when vegetables were in abundance. During production seasons vegetables were more available both in quantity and quality and would sell at a relatively affordable price allowing for increased consumption. Although this may still be true, we find that increased vegetable importation has maintained the stability of vegetable availability. Toronto imports fresh produce even during the production seasons and even though some of these ECV can be locally grown (FHAC, 2000).

Supply chains and their influence on vegetable consumption

Apart from increased variety, the effects of globalisation have influenced the ECV distribution chain (Swinnen & Maertens, 2007; Goldman et al., 1999) as global mass supply/importation of vegetables by multinational co-operations has increased with increased international trade. Liberalisation of trade has triggered escalated foreign investment in agribusiness, food industries and food distribution and retailing (Swinnen, 2005) and has seen a change in market strategies as the growth of supermarkets dominate the food retail market (Reardon & Swinnen, 2004). Entry of mainstream supermarkets has enabled a constant reliable supply of vegetables from large scale importers. These have provided quality vegetables at a
relatively cheaper price due to the lower costs of production. Importation of cheap vegetables through the global trade system has had the effect of reducing prices of many locally grown vegetables (Xuerebo & Desjardins, 2005) and enabled cheap vegetables to infiltrate the market but also allowed for increased consumption. Food costs have been lowered as a result of increased competition, greater concentration and specialization of production and distribution (Raikes & Gibbon, 2000, Wormsbecker, 2007) as more players have joined the global food market. On the other hand, the growth in numbers of immigrants has led to increased demand for native foods, which has allowed the mushrooming of alternative importation of ECV as a result of the increased yet un-met demand for the ECV. This has led to a growth of specialty stores (Lister, 2007) and diversity in supply chains and marketing strategies of ECV. Specialty stores that depend on individual arrangements for the supply of their imported vegetables or locally produced vegetables are likely to obtain ECV at higher prices therefore affecting the final prices and consumption. Supply chains have consequently affected the quality, quantity and the assortment of ECV. Supply chains have influenced ECV consumption through improved availability which has allowed for increased choice but also affected the final price and affordability of ECV. Furthermore, the quality and safety of foods has improved due to increased consumer demand (Maertens & Swinnen, 2007) and competition as a result of globalisation on supply chains which pushed supply chains to regulate the standards of their products (Wilson & Abiola, 2003). Quality and quantity of ECV have in turn influenced the prices at which these vegetables are sold (Waugh, 1928) and as a result the affordability and consumption of ECV.
Micro-environment and ECV consumption

The micro-environment includes ability to access ECV manifested through the distance one has to move to the nearest grocery store, one’s economic state, the appropriateness, adequacy and nutritional level of the vegetables.

Store proximity

Selection of grocery store for purchase of vegetable if a factor of distance one has to move to that store. One’s proximity to a grocery store may play a role in whether or not one purchases in that grocery store especially if she/he depends on public means for transport. Bodor et al., (2007) found that people’s consumption of vegetable was closely related to the distance one had to travel to the nearest grocery store. The closer one was to the store the higher the chances that the person would consume vegetables. One’s access to a supermarket was also found to play a role in consumption of vegetables (Morland et al., 2002; Rose & Richards, 2004; Laraia et al., 2004) This is further enhanced by the fact of availability of vegetables in the store. If the store offers most of the vegetables it influences one’s chances of purchasing the vegetable in that store (Jago et al., 2007).

Social-economic status

One’s social-economic status (Steele, et al., 1991; Shimakawa, et al., 1994; Roos, et al., 2008) and factors that lead to unequal wealth distribution usually compel one’s vegetable selection with one opting for less expensive affordable foods depending on one’s income. Immigrants, busy single parents and low income earners may not have an option for healthy eating as they are faced with obstacles of finances and time for preparation. Many among the immigrant population, faced with the burden of re-settlement, job seeking and acclimatisation to the new country, have found themselves in a situation of low income jobs hence less able to
afford healthy feeding, opting for the more convenient less expensive, processed foods (Neff et al., 2009). This is also true where vegetable consumption has been positively correlated to income growth where the wealthier middle class have been found to be more likely to upgrade their diets to include vegetables (Regmi et al., 2001) as the low income earners depend on the less expensive more convenient processed foods.

**Appropriateness, adequacy of vegetables**

Final the appropriateness, adequacy and nutritional level of the vegetables sold is important (FAO, 2004) as consumers are not interested in any kind of vegetable but are specific in their demands. It is necessary to stock the right vegetables for the right group and the vegetables need to be fresh and nutritious if consumers have to be attracted to come back and shop.

In conclusion ECV consumption is a complex phenomena affected by intertwined factors such as personal characteristics, micro and macro environment which determine the availability, accessibility and affordability of ECV. With these findings a conceptual framework showing the possible relationship between the different factors influencing ECV consumption was developed and is shown below.
Personal Characteristics

1. Demographic characteristics
2. Lifestyle
3. Ethnicity/cultural
4. Health concerns (human health & environmental sustainability)
5. Need for variety

Mixcro-Environment

1. Distance from Store
2. Economic status
3. Appropriate, adequate, nutritious

Macro-Environment

Globalisation

Immigration

Supply Chain (local, import)

Season of production

Variety/ Assortment Preference

Demand (for ECV/locally produced & organically produced)

Costs (production, distribution & transportation)

Availability

Quantity & Quality

Price of ECV

Affordability

Utilisation

Affordability

Accessibility

Figure 1. Factors affecting ethno-cultural vegetable (ECV) consumption in the GTA.
ECV retail market structure

ECV pricing

Although demand and supply of ECV may continue to rise, their final accessibility and utilisation depends on the affordability of ECV by the consumers which is partly dictated by the price of the vegetables (Powell et al., 2009). It is very difficult to fully understand all the factors that influence prices for agricultural produce especially the perishable products like fresh vegetables. However, according to Powell et al., (2009) it is clear that price plays a key role in influencing vegetable sales and hence consumption. Fluctuations in vegetable prices have been studied and various factors attributed to the differences in vegetable pricing. BC Factsheets, (2006) records consumer preference, proximity, seasonality and trade agreements as some of the factors that influence the prices of vegetables. Vegetable prices may also depend on season, origin and packaging (Goodwin, et al., 1988). Waugh (1928) identified three major aspects in price determination in Ireland as production costs, consumer demands and business costs. Waugh breaks down consumer demands to include quality, national taste, food safety, hygiene, size and shape while business costs involved distribution and transport costs. The difference in quality has led to the price variation on a day to day basis while the seasonal changes in price are a result of changes in vegetable quantity (Waugh, 1928). Vegetable production in Canada has been limited to only the favourable seasons with any off-season production involving high technology agriculture such as green houses or processing and preservation of vegetables. Seasonal variation in fresh vegetable supply translates into low availability of quality fresh vegetables (Waugh, 1928) and consequently higher prices. Therefore for local vegetable production to be able to compete in quality and quantity there has to be a careful selection of methods and techniques used to minimise costs.
In setting prices, one presupposes that both inputs and outputs of production are priced therefore production is fully integrated in the marketing relations enabling the invested capital to be reproduced with profits. This is especially reflected in most high value crops like vegetables and organically produced crops which require higher costs of production therefore higher prices. The relationship between production costs and price have been altered by large scale producers whose costs are minimised due to the scale at which they operate compared to the high production costs in small scale local productions (Peterson et al., 1999). Because of minimised production costs, large scale producers are able to set averagely low prices and still meet their profit margins. This may not be possible with small scale producers whose production costs are higher yet the prices are controlled by the prevailing conditions set by the large scale producers and importers. For a business to be viable and profitable, one requires to know and include all the production costs in setting the price. In small scale retail marketing, operating costs, which are sensitive to quantity, are likely to be higher due to the small scale production. In organic production, producers have managed to get away with premium prices that cover for the relatively higher costs of production by creating a niche market for these vegetables. The difference in prices charged on vegetables has created two categories of consumers determined by their elasticity of demand. Consumers with a lower income relative to the cost of the food tend to be more price elastic (Han & Wahl 1998) and such customers tend to seek substitutes to some of the foods or target sales when prices are relatively lower so usually compromising quality for cost. Low price elasticity consumers, on the other hand are less responsive to price and are more likely to pay premium prices for quality vegetables. Price is thus likely to play a major role among the low income, high price responsive customers while quality may be of more importance among the wealthier high income earners (Han & Wahl 1998). Furthermore the
place of purchase may also affect the price of vegetables, whether one goes to a supermarket, discount store or grocery store affects how much one pays for the vegetables (Bayew, et al., 2004).

ECV are sold either in speciality stores, mainstream supermarkets, personal network or farm gates. Different stores have registered differences in the varieties, quality and quantity of vegetables sold and thus prices charged on ECV. The store visited influences the vegetables accessed and hence the price charged. In Toronto, large differences have been recorded between prices of ECV sold in different stores despite the fact that Toronto is gifted with ECV varieties. Many convenience stores, located more in the poorer/marginalised neighbourhoods, are noted for over-pricing their vegetables compared to the lower priced mainstream stores with more nutritious foods in the upscale neighbourhood (TFPC, 1996). The convenience stores in the low income zones are usually stocked more with processed vegetables and therefore the ability to access basic high quality vegetables is not possible. This has had the consequence of producing obese populations and an increase in food related illnesses with the young and the poor being most affected (Jackson et al., 2009). Although Dunn et al., (2011) too noted a price difference across stores depending on the socio-economic status of the community that lived in that area, his study showed that prices were recorded as higher in areas where the community was of a higher income than where the community was mainly composed of low income earners. The high demand, yet low availability of ECV is likely to pose a danger which directly impacts prices both on large supermarkets and smaller grocery stores. It is clear that with low availability of ECV, low income communities replace ECV with less healthy, low cost, highly available processed foods.
ECV market

The ethnic food industry has experienced an exponential expansion and heightened the demand for ECV raising the popularity of specialty foods which are expected to grow at 12% a year in the next 5 years compared to other foods (Hamilton & Spence, 2008; Toronto Food Business Incubator (n.d)).

Locally produced ECV are marketed through alternative markets such as the farmers’ markets, farm shops, community supported agriculture (CSA), and retail speciality stores. Local producers may also supply large chain stores however their local supplies are inconsistent due to the low production during off-seasons, a condition which plays against local producers as the chain stores require a constant supply all year round. The growth in popularity for ECV has created a niche market which has not been met by the local supply (Hadrer & Benner, 2008). A study by Farmstart indicates that most ECV consumed in Canada are imported from abroad. Since the local supply is not able to meet the year round demand for ECV, consumers have had to opt for imported vegetables which are more consistent and available in required volumes (Xuerebo & Desjardins, 2005) all year round. Local ECV supply has also been limited in the kinds of ECV produced as some vegetables are not yet able to be grown in Canada.

ECV are imported in larger volumes from either the US, Mexico, Domican Republic supplied mainly through large chain stores and specialty stores, these supply directly to dealers or the Ontario Food Terminal. The Ontario Food Terminal (OFT), Canada’s largest wholesale fruit and vegetable distribution centre, is another source for buying and selling ECV. OFT deals in both locally produced and imported vegetables and sells its produce through on-site farmers’ markets, wholesalers and buyers operating grocery stores of various sizes from large independent retailers to smaller corner markets, corporate stores and restaurants (OFT website). The largest
bulk of ECV sold at the OFT is imported from the US and Mexico and is distributed through large corporate grocery stores such as Loblaws and the Food Basics.

Vegetables are also imported through various ways on individual basis from Asia, Latin America, the Caribbean or Africa. The size and frequency of this business is based on the demand and financial ability of the individual and ECV are supplied directly to the dealers such as speciality retail stores or restaurants. Since these supply chains are individually based, they have not been studied much and are not well identified. While this supply chain cannot be ignored, its sustainability and viability is questionable as the supply is in small quantities and is therefore faced with the challenge of high costs and low profits associated with small supplies.

Although large scale importation of vegetables has reduced costs and made vegetables more accessible to all, the continued dependency on importation and the regulations that govern the vegetable market have continued to favour the more upscale producers while marginalising the less fortunate small scale producers and supplier. As a result many small scale producers have fallen out of business (Lister, 2007). The favouring of upscale producers has also limited the accessibility and affordability of these vegetables by all as the upscale producers deal more with larger chain supermarkets better situated in peripheral areas occupied mainly by the more economically stable community.

**Retail store patronage**

Studies on store patronage have advanced a number of theories relating to the attributes that influence consumers’ choice, including prices, convenience, quality, assortment, service and many others. What is clear is that consumers make their selection based on informed decision as a result of available information on the alternatives. For an attribute to be determinant in store
selection, it must be considered important and its presence should create ample satisfaction to the consumer and the consumer will have considered the alternative as a differentiated product (Myers & Alpert, 1968).

Arnold, 1997 observed that in cases where price variations exist, consumers tended to select their stores depending on price, with many opting for the cheaper stores. However Carpenter & Moore (2006) argues that price is only a determining fact for the low income earners and plays a less significant role among high income earners. According to Carpenter & Moore (2006), income was an important predictor for store selection with higher income earners patronizing specialty stores. This was more related to the cleanliness, product assortment and customer service. Other demographic characteristics such as age, education level and household size were also found to play a role in store selection (Fox et al., 2004; Crask & Reynold 1978; Arnold, 1997). Larger households were more likely to patronize larger stores that offered lower prices. While the younger more educated higher income earners were less influenced by price but by assortment, quality and service and hence were more inclined to patronizing larger stores. Store selection was also found to be related to underlying cultural and ethnic factors that characterized the clientele population. Boone et al., (1974) reported significant differences among Mexican-Americans and Anglo-Americans with respect to selected shopping orientations.

Hernandez & Bennison, (2000) found that store display, packaging, labelling and attractiveness of the store enticed an increased number of consumers into the store thus store image played a significant role in consumer store preference. McDaniel & Baker (1977) found that packaging played a role in influencing product evaluation and judgment hence the decision whether or not to purchase. Stores with well packaged produce attracted more consumers especially when the
packaging took care of characteristics like type of packaging, colour and novelty for example storage of package once opened, size of package and details on the label.

With the stiff competition in the retail market, retailers have advanced in studying their clientele behavior and adjusted their services accordingly as a result no single attribute may be held important permanently. For example in 1974 Arnold & Tigert in their study found price to be the determinant factor for store selection yet a year later best customer service was the overriding attribute. Determinant factors were also found to be changing with changes in national boundaries where Doyle & Fenwick, (1974), found quality to be a major attribute in store selection in London while service, location and price were important for consumers in Toronto.

With the stiff competition in the food retail market, it is important for retail owner to study their market well, understand the factors that govern their sales and adjust accordingly to be able to cope with the demand and remain abreast with the competition.
Chapter Four: Research method

Research design
A study of the vegetable pricing and structural arrangement of large chain supermarkets and speciality grocery store was done. Prices were recorded over a one year period and this helped cover three seasons (winter, summer and fall prices) and notes were taken on the quality, availability of vegetables, services provided and clientele base.

A lot of work has been done on pricing of non-food commodities and processed foods. Literature is available on pricing of foods such as dairy and meat, however little is known about the pricing and availability of ECV in Ontario. In this study I used the grounded theory approach to develop a theory relating pricing, availability and marketing strategies of ECV in ethnic and mainstream stores. According to Glaser and Strauss (1967), and Strauss and Corbin (1990), the grounded theory approach involves development of a theory from data collected from the population. The grounded theory is a form of inductive research with a clear problem (Hueser, 1999) that is not well understood theoretically but through intensive data collection and analysis, a theory to answer to the problem is developed (Strauss & Corbin, 1990). This is a useful method as it ties the theory to the data.

An exploratory research drawing on an initial intensive literature review followed by data collection was conducted. The study employed at a mixed method using multiple sources where both qualitative and quantitative data were used enabling both methods to work as interplay where each played a significant role in contributing to the theory (Strauss & Corbin, 1998) as well as assist in increasing the validity of the research (Palys, 1992). The qualitative research involved in-depth interviews, direct observations, and unobtrusive methods like photo taking and
informal discussions with consumers, while quantitative research involved longitudinal research on price data for ten ECV in mainstream stores and each ethnic group of the Chinese, Afro Caribbean and South Asians. Another survey on price data was also conducted in two mainstream stores in Guelph. Pre-collected cross-sectional survey data on ECV consumption collected by Adekunle et al., 2009/2010 was also used. The flow chart below gives a summary of the method as used in the research.
Data collection methods:

Literature review provided a deeper understanding of ECV, presenting what has been studied, the major existing theories and arguments, what is known and what still needs to be
done (Levy & Ellis, 2006) hence establishing the relevance of the study. From the literature reviewed, a conceptual framework was thereafter developed which highlighted factors that influenced consumption of ECV.

A survey was used to collect information on price data and to study factors that influenced consumers’ selection of ethnic store for vegetable purchase. The survey as a data collection method involved compilation of data from a representative group in a pre-determined population of interest and with this data I was able to make an inference to the wider population (Kelly et al., 2003). The survey data was useful in describing characteristics of a large population and with a large sample size; results could be used to generalize the findings (Kelly et al., 2003). In this study, pre-collected data from a cross-sectional survey design was used to get client views on ECV and to examine relationships among variables of interest, capture attitudes and patterns of the shoppers, the findings were further supported with a longitudinal survey. The longitudinal survey was then used. This survey was designed to study same variables over an extended period of time in order to understand interactions and trends (Koen, 1999). The longitudinal survey helped me discover relationships between variables such as vegetable price, quality, and variety and how these changed over time.

Key informant interviews were used to gather information from individual(s) considered particularly knowledgeable about the topic of interest. I employed open ended questions conducted in a face to face setting allowing for a deeper insight into the topic through probing (Kumar, 1989). In this study, key informant in-depth interviews were held to further enrich our findings from the survey (Boyce & Neale, 2006) and helped us gain an insight into the opportunities and challenges of retail ECV as perceived by store managers/owners.
Direct observations were also used. These involved collecting data by watching the physical characteristics of the phenomena or event in its natural setting as it occurred. Direct observations were made on different variables throughout the period of price data collection. Results from direct observations helped us understand better the pricing phenomena and the clientele behaviour. It also contributed to the unanswered questions as a result of the unwillingness of people to be interviewed and this was used in the triangulation of information collected using other methods.

Study area:

This study was carried out in the Greater Toronto Area (GTA) and Guelph city. The GTA was selected for this study because of its high numbers of immigrants making it a representative sample of one of those areas in Canada with one of the highest level of cultural diversity (Statistics Canada, 2006a). The GTA is not only an area with high cultural diversity but also has an assortment of speciality and mainstream stores selling ethno-cultural and other vegetables (Lister, 2007). Guelph on the other hand is a small city with less cultural diversity but its mainstream stores sell some ECV. The two seemingly different scenarios posed interesting study opportunities on the retailing of ECV.

Population studied

This study focused on Canadian immigrant populations with specific interest on the three largest visible minority ethnic groups in Toronto, the Chinese, South Asians and Afro-Caribbean (Statistics Canada, 2006b). These ethnic groups have a lot in common although differences may exist within the groups in the food habits.
Interview guide

Two interview guides were used in this study. One interview guide was used for the survey data collection on the 750 consumers while the other was used for in-depth interviews with store owners/ managers. The interview guides were semi-structured with both open ended and close ended questions.

Development of interview guides:

Development of interview guides was an integral part of the research method that helped me keep in line with the research therefore the process of interview guide development was given ample attention. The interview guides were development by Adekunle et al., in 2009 through a rigorous seven steps process mainly; information identification, selection of questions, method of administration, determining content, sequencing, reviewing and pre-testing.

Information identification was through an intensive literature review on ethno-cultural vegetables which helped the researchers get a better understanding on the issues concerning ECV consumption, opportunities, and barriers. The literature review was followed by in-depth interviews with people who had a broad knowledge on ethnicity, food consumption and types of ethnic vegetables (Adekuunle et al., 2010). Based on the information gained, concepts were developed that related to the research topic and these guided the team in the development of the questions. The questions were then reviewed and scrutinized for relevance, redundancy, repetition, language, clarity, sensitivity and ascertain they answered to the research problem. The questions were then sequenced and grouped under five themes; vegetable expenditure, consumption of ethnic vegetables, acculturation, background information and personal characteristics.
Pre-testing

The interview guides were then pre-tested for reliability (consistency of the measurement procedure) and validity (measurement of what it is intended to measure) on five respondents from Guelph. The respondents used were of Indian, Nigerian, Chinese, Kenyan and Ghanaian origin (Adekunle et al., 2010). This covered the three main ethnic categories involved in the study, the Chinese, Afro-Caribbean and South Asians. The instrument was also pre-tested for content validity by an expert review. Finally the instrument was submitted to the University of Guelph Research and Ethics Board for approval.

Longitudinal survey (Pricing data):

Objective two: To examine price trends and availability of ten ethno-cultural vegetables over three seasons in eight retail stores in the GTA.

Store selection in the GTA:

Price and availability data of ten ethno-cultural vegetables was collected from eight retail stores in the GTA. A list of ethnic stores in the GTA was used as the sampling frame and from this list, stores were selected according to the store management willingness to participant in the study, availability of the vegetables of interest (all stores had to meet the criteria of selling at least some ECV), price labelling for convenience of data recording. Some stores did not display the prices which made it difficult for data collection and such stores were dropped out of the study.

The stores were selected from two areas which are known to have a high population of our interest groups (Chinese, South Asians and Afro-Caribbean). Two stores from each category were selected these included two of the Chinese retail stores, South Asian stores, Afro-Caribbean and Mainstream stores. For convenience of data collection we selected stores within short travel
distances although we had some stores on the western side while the others were on the eastern side of Toronto with one in the city centre (downtown). The store downtown was selected because of its positioning in China Town making it a typical representation of the stores in the area therefore a good depiction of the price trends in that area.

**Sampling procedure in the GTA:**

Retail price data for ten vegetables of the same type, grade and variety were recorded on a bi-weekly basis five times in each season of winter, summer and fall 2011. Prices from the ten most preferred vegetables selected from the list of vegetable preference by ethnicity as obtained by Adekunle et al., (2010). The list of ten most preferred ECV differed across the three ethnic groups. Although some vegetables appeared in two or all of the ethnic groups, some were unique to a particular ethnic group. It was also noted that some vegetables had different varieties so for longitudinal purposes data collection on the same varieties was maintained. It was also noted that similar vegetables were called different names in different stores so for purposes of uniformity and consistency the team agreed on a particular variety to be considered regardless of the different naming. For the purpose of clarity some photos were taken of these vegetables.

Non-discounted prices were recorded and for vegetables that appeared both inside and outside the store (veranda), prices for inside vegetables were considered as it turned out that vegetables outside were sometimes those on sale.

Price variations occur according to change in unit weight and for that reason price data was recorded in dollars per unit pound for each vegetable however in some cases prices were quoted per package and in such cases the team noted this and made the data collection uniform by collecting from packaged vegetables for that specific vegetable. Where prices were recorded in dollars per unit kilogram, the price was converted to dollars per unit pound. The days and time of
sampling were kept as uniform as possible because these are likely to affect the quality and the quantity of vegetables available. Data was therefore collected on the same day of the week within the same time range of between 11am to 2pm. These stores were visited on a bi-weekly basis.

**Limitations**

In some instances, there was a packaging difference in terms of weight from one store to another. This would affect the price comparison as prices were quoted per package and not per pound. For example in same stores carrots were sold in packages. These packages differed in size/weight making it difficult to generalise the price.

Difference in varieties; same vegetables had very many different varieties and some of these were very difficult to differentiate from one another yet the price charged depended on the variety e.g. Okra from India was sold more expensively than that from Mexico yet in the absence of one you may not distinguish between the two varieties as the place of origin was not usually marked.

**Objective three:** To examine price trends and availability of ethno-cultural vegetables over three months (summer) in two main-stream stores in the city of Guelph.

**Store selection in Guelph:**

In Guelph city two mainstream stores were randomly selected and these stores were visited on a weekly basis for three months in the summer of 2011. Price data for 36 ECV was recorded. The findings were complimented with observations and photo taking on availability, quality, and variety, place of origin and preservation of these vegetables.
Cross-sectional survey design

Objective four: To determine the factors that influence selection of ethnic retail store for purchase of ECV.

The study used pre-collected data to study factors that influenced consumers’ choice of ethnic store for purchase of ECV. Secondary data from a survey done in 2009 in the GTA was used and this was from a population of 750 ethnic store respondents. A semi-structured questionnaire with both open ended and close ended questions was used to guide the interviews.

Store selection

Store selection was done based on a comprehensive list of ethnic grocery stores in the GTA. The list indicated the different ethnic stores and the ethnicity inclination of the store. From this list, a systematic purposive sampling was done where sample stores from the larger list were selected according to set criteria with a random starting point and a specific interval. In this case every third store on each list of the Chinese, South Asian and the Afro-Caribbean was selected for inclusion (Adekunle et al., 2009).

Selection of respondents:

Stratified sampling was used in order to get equal numbers of respondents from each ethnic group. Two hundred and fifty respondents were sampled from each ethnic group. Within the ethnic groups, respondents were selected using a systematic sampling method where every nth number of customers who visited the store was selected and interviewed (Adekunle et al., 2010). The respondents interviewed had to be above 18 years of age and had a level of influence on the decisions of vegetable purchasing. Therefore family heads rather than children were preferred for the interview. The interviews were carried out by research assistants who had been trained
by the researcher on the survey concepts, definitions of terms, data collection procedures, and criteria for store and respondent selection.

In-depth interviews

Objective five: The fifth objective, determining service provision, store structuring, selling strategies/ and consumer marketing strategies.

In-depth interviews with key informants were then conducted. Key informants were either store managers or store owners who were willing to talk to us and have the interviews done. The interviews were followed with direct observations made on variables such as quality of produce, place of origin, amount of produce available, variety of produce, store arrangement, services provided and the clientele base. And finally photos were taken of situations that emphasized or clarified the observations made. Photos taken captured attributes such as quality, price labelling, place of origin, name of vegetable.

Key informant interviews

Interviews with four key informants were done with the purpose of acquiring insights into the details (Gubrium & Holstein, 2001) of ECV marketing and retailing. These in-depth interviews were conducted on either store managers or store owners of each of the three categories (Chinese, South Asians and Afro-Caribbean) Interviews were done at the stores ensuring a conducive, relaxed and comfortable atmosphere. Consent was sought and confidentiality guaranteed to the interviewees. The interviewees were also made aware that they were free to stop the interview at any time they felt they did not want to proceed.

A semi-structured interview guide with both close ended and open ended, discovery-oriented questions were used allowing for deep exploration of the respondents’ knowledge on
ECV to gain a rich background of the topic and to supplement the findings of the surveys. The interviews took approximately 20 – 30 minutes and these were recorded at the respondent’s consent.

**Direct observations**

A check list was created for the things to be observed and these included the quality and quantity of the vegetables, varieties of vegetables present, labelling, place of origin, structural arrangement of the store, and one- on- one service provision in store. Observations were made by all the team members and shared after each store visited. These observations were then recorded. However it must be noted that observations changed over the course of the study and this is in line with the grounded theory where questions are added as issues emerged. An example of observations added were those on place of origin.

**Data analysis**

**Quantitative data analysis:**

The statistical programme for social sciences, PASW Statistics 18.0 (SPSS Statistics) and Micro-soft Excel for windows were used to analyse the data. Both descriptive and inferential statistics were done. The descriptive statistics was used to summarise data into a smaller manageable size to enable us describe the characteristics of the data in terms of the mean, central tendency and frequency of occurrence. Inferential statistics were used to make inferences from the research sample about the wider population hence helping us make judgement and conclusions about the larger population from which we sampled depending on the results of our samples and these included t-test, ANOVA and binary logistic regression.

**Descriptive statistics:**
**Means and standard deviation:** Pricing data obtained on ten ethno-cultural vegetables collected from eight retail stores in the GTA over three seasons were analysed using descriptive statistics. Frequency of occurrence was checked to see how often the vegetables were present in the stores; this information was also used to clean up the data by checking outliers, missing data and incorrect data. Means were then run in-order to obtain the average prices calculated per store and per season, while the standard deviation helped us understand better the distribution of the data around the mean. The means were then entered into excel and graphs plotted to study price trends.

**Inferential statistics:**

**Students- T-test (T-test).** A t-test is used to assess whether the means of two groups are statistically different, i.e. are the observed differences between the two means real or only happened by chance. In this study a two tail t-test was used to make a comparison between two stores for the mean prices of similar ECV, at a 95% confidence interval. The differences were considered not significant (not real) if the t-test $\rho$-value was greater than 0.05 and the difference was significant (real) if the $\rho$-value was $\leq 0.05$ (Burns & Grove, 1997). The t-test was also used to compare price mean differences between seasons.

**Analysis of variance (ANOVA):** A one way ANOVA was used to determine whether store or season had an effect on vegetable prices. The difference in means for vegetables that appeared in more than two stores was studied and then the effect of the three seasons of winter, summer and fall was also determined. The one way ANOVA was used because we were dealing with one factor at a time (stores or season).

**Binary logistic regression;**
To analyse the factors that influence consumption of ECV, a binary logistic regression was applied using pre-collected data by Adekunle et al, 2009/2010. Regression is a statistical procedure which uses explanatory (independent also called predictor) variables to attempt and predict the response (dependent) variable and its results are expressed in the form of an equation also known as a model (Peng, et al., 2002). There are different types of regression and the type used is usually dictated by the response variable one is attempting to predict. The binary logistic regression, in our case was used to try and predict a variable with a dichotomous response (Peng, et al., 2002).

Binary logistic regression is a statistical analysis that is used to assess the effect of explanatory variables (predictor) on a dichotomous response (criterion) variable (Bonney, 1987) and it focuses on the relative probability or the odds of a particular category occurring, worked out in natural logarithm to give a linear model represented as;

$$\log \left( \frac{p}{1-p} \right) = a + b_1x_1 + b_2x_2 + b_3x_3 \ldots \ldots + b_nx_n$$

Where $p$ represents the probability of an event occurring (for example purchasing in an ethnic store = $p$ and purchasing not in an ethnic store is $1-p$),

$a$ is the y-intercept,

$x_1$ to $x_n$ represent the independent variables included in the model.

$b_1$ to $b_n$ are coefficients of association for independent variables to the outcome variable (log odds).

The binary logistic regression assumes the distribution is not normal. It predicts relationships between a categorical outcome variable and one or more categorical or continuous predictor variables (Bewick, et al., 2005). Therefore in binary logistic regression the response variable is always a binary or dichotomous variable and never continuous while the explanatory variables
maybe continuous, discrete, dichotomous, or a mixed variable. It does not assume a linear relationship between explanatory and response variables and the explanatory variables should not be highly correlated with each other as this makes it difficult with estimations (Bewick, et al., 2005). In the binary logistic regression, explanatory variables are not linearly related nor of equal variance within each group. A case in binary logistic regression can be a member of only one group and every case must belong to at least one group. Larger samples are needed in a binary logistic regression with an increase in expected sample size for every increase of explanatory variables (Bewick, et al., 2005).

Binary logistic regression is not a discriminant analysis therefore it allows for the prediction of a discrete outcome from a set of continuous, discrete, dichotomous, or mixed variables without making any assumptions of linear distributions of the explanatory variables hence its able to handle non-linear effects. The explanatory variables do not have to be normally distributed. With the right statistical package, logistic regression is very easy to do however, it is not as easy and straightforward to interpret the coefficients and test for goodness of fit of logistic models. The binary regression is more robust and does not assume a normal distribution of the independent variables or a linear relationship between independent and dependent variables. According to (Zhao et al., 2001) logistic regression is a better approach than linear regression to model percentage as it has the inherent advantage of always making biologically meaningful predictions.

Given the characteristics and strength of a binary logistic regression over the linear regression and the nature of my study where the dependent variable, selection of ethnic store as the place of purchase of ECV, was a dichotomous variable while the independent variables were both dichotomous and continuous, a binary logistic regression was the model of choice.
This study used a binary logistic regression in an attempt to determine how a response variable (selection of ethnic store for purchase of ECV) changed with respect to the explanatory (predictor) variables. In this study we looked at the response variable (y) as: ethnic store for purchase of ECV while the predictor variables (X) as:

- The demographic characteristics (age, gender, years spent in Canada, marital status, level of education, number of people in household);
- Factors related to vegetable expenditure such as consumption of vegetables, source of vegetables, amount of money allocated to purchasing food, amount of money allocated for vegetable purchase, vegetable attributes, satisfaction with quality of vegetables, vegetables often purchased, contribution of vegetables to health, health attributes;
- ECV consumption including whether respondents had purchased any ECV in the last 12 months, amount spent on vegetables, Importance of certain attributes - store availability, language, quality, willingness to pay more, advertisement, vegetarian; and
- Acculturation factors such as respondent enjoying speaking English, whether most friends were outside the respondent’s ethnic group, whether respondent enjoyed English language movies, whether the respondent learns from people outside his/her ethnic group, welcomes values outside the person’s ethnicity or has difficulty accepting values outside his/her ethnicity or prefers non-ethnically similar people.

All categorical and interval data were re-coded into binary variables and responses were assigned numeric values of either 1 or 0, continuous variables were left unchanged. Where a likert scale with five possible responses was used, say 1 = very important; 2 = Important; 3 = neither important nor unimportant; 4 = unimportant and 5 = very unimportant; the variable was
re-coded into a dichotomous variable by combining 1 and 2 into one response category assigned numeral 1 while 3, 4, and 5 were put into another category and assigned numeral 0.

The independent variables were analysed using SPSS to test for linearity and the linearly related variables were removed from the list. The remaining variables were then used to identify the variables that explained the decisions of consumers to select an ethnic retail store for their purchase of ECV (y). Binary logistic regression is based on odds and not proportions, (Peng, et al., 2002) where odds are ratios of the proportions for the two possible outcomes i.e.

\[ P = \text{proportion for one purchasing in ethnic grocery store and} \]
\[ 1-P = \text{proportion for purchasing any other grocery stores} \]

The odds = p/ (1-p)

The response variable (y) is expressed as a proportion of the explanatory variable in this case;

\[ P / (1-p) \]

However in binary logistic regression a natural log transformation is done on the odds (p/1-p) giving us

\[ \log(p/1-p) \]

And the new equation becomes

\[ \log(p / (1-p)) = a + b_1x_1 + b_2x_2 + b_3x_3 \ldots \ldots . b_nx_n \]

Table 1. Summary of the variables used in the binary logistic regression.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>A34</td>
<td>y</td>
<td>1 = ethnic store, 0 = others</td>
</tr>
<tr>
<td>E1</td>
<td>X_1</td>
<td>Continuous (years)</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
<td>Scale</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>E2</td>
<td>Gender</td>
<td>1 = Male, 0 = Female</td>
</tr>
<tr>
<td>Maritalstat</td>
<td>Marital status</td>
<td>1 = Married, 0 = others</td>
</tr>
<tr>
<td>Edummy</td>
<td>Highest education attained</td>
<td>1 = University, 0 = others</td>
</tr>
<tr>
<td>E6</td>
<td>Household size</td>
<td>Continuous</td>
</tr>
<tr>
<td>D4</td>
<td>Years spent in Canada</td>
<td>Continuous (years)</td>
</tr>
<tr>
<td>A1</td>
<td>Do you eat vegetables?</td>
<td>1 = Yes, 0 = No</td>
</tr>
<tr>
<td>A5</td>
<td>Amount spent on vegetables</td>
<td>Continuous ($)</td>
</tr>
<tr>
<td>ImpotaAvail</td>
<td>Importance of Store availability in purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotaLang</td>
<td>Importance of Language in purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotaSelec</td>
<td>Importance of Selection in purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotFresh</td>
<td>Importance of Freshness in purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotQual</td>
<td>Importance of Quality on purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotPrice</td>
<td>Importance of Price on purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotPack</td>
<td>Importance of Packaging on purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotOrigin</td>
<td>Importance of Origin on purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotTaste</td>
<td>Importance of Taste on purchase of ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>ImpotMedic</td>
<td>Importance of Medicinal on ECV</td>
<td>1= V. important &amp; Important, 0 = Others</td>
</tr>
<tr>
<td>B9</td>
<td>Willingness to pay more</td>
<td>1 = Yes, 0 = No</td>
</tr>
<tr>
<td>B13</td>
<td>Does advertisement influence ECV purchase?</td>
<td>1 = Yes, 0 = No</td>
</tr>
<tr>
<td>B17</td>
<td>Are you vegetarian?</td>
<td>1 = Yes, 0 = No</td>
</tr>
<tr>
<td>EnjSpeEng</td>
<td>Enjoy speaking English</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
<tr>
<td>FrieOutEthni</td>
<td>Friends outside ethnic group</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
<tr>
<td>LearnOutEthni</td>
<td>Learn outside ethnic group</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
<tr>
<td>WelEthniV</td>
<td>Welcome other ethnic values</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
<tr>
<td>DiffilAccEthVa</td>
<td>Difficulty accepting my ethnic values</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
<tr>
<td>FoodNotEth</td>
<td>Prefer food not of my ethnic</td>
<td>1 = Strongly agree &amp; Agree, 0 = others</td>
</tr>
</tbody>
</table>
Qualitative data analysis

Objective five: To assess service provision, store structuring and marketing strategies in eight retail stores in the GTA.

Key informants (interviews):

To determine service provision, store structuring, selling strategies/ and consumer marketing strategies, a descriptive case study based on in-depth interviews and direct observations on quality, availability and clientele base was done. Photographs of interesting issues were taken and used to further explain the findings. The data collected from interviews was then transcribed and broad themes from the interview were developed these included; gender composition, ethnic composition, age composition, competition, storage, entry of mainstream stores, many ethnic stores, cost, transportation, low profits, quality, amount supplied, stock/ what they sell and demand for vegetables.

Table 2. Themes and sub-themes of the transcribed interview.

<table>
<thead>
<tr>
<th>Broad Themes</th>
<th>Narrowed down subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender composition, ethnic composition, age composition</td>
<td>Clientele structure</td>
</tr>
<tr>
<td>Amount supplied, stock/ what they sell</td>
<td>ECV availability</td>
</tr>
<tr>
<td>Quality, freshness, taste,</td>
<td>Quality of ECV</td>
</tr>
<tr>
<td>Cost,</td>
<td>Pricing</td>
</tr>
<tr>
<td>Competition, storage, entry of mainstream stores, many ethnic stores,</td>
<td>Challenges and opportunities</td>
</tr>
<tr>
<td>transportation, low profits and demand for vegetables.</td>
<td></td>
</tr>
</tbody>
</table>

These were then narrowed down and refined into subjects to fit the research question. The main subjects were clientele structure, ECV availability, Quality of ECV, pricing, challenges and opportunities (see table 2. below). Notes were taken on those issues that seemed to emphasis
the interviewee’s passion, energy, worry, fear or satisfaction. The work was then organised in a
way that allowed for a smooth flow. Quotes from interviewees were included to emphasis a
point or to elaborate on a situation. With the use of mixed methods data was collected and the
results are presented in chapter five.
Chapter Five: Results

This chapter is divided into two sub-sections; the first sub-section addresses objectives two and three and is presented as a quantitative analysis section. Descriptive statistics and inferential statistics such as the T-test, ANOVA, and the binary logistic regression used to explain relationships. The second sub section presents results for objective four. This is a qualitative analysis of interviews with store owners and observations made during price data collection.

Sub-section one: Descriptive statistics on ethno-cultural vegetable availability and pricing.

Objective two: To examine price trends and availability of ten ethno-cultural vegetables over three seasons in eight retail stores in the GTA.

ECV availability in Chinese stores: About sixteen visits were made to two Chinese stores over a period of three seasons. During these visits, availability and pricing of the ten most preferred Chinese vegetables (Adekunle et al., 2010) were observed. Results obtained show that most of the ten ECVs were available during the fall 2011 and summer 2011 in both of the Chinese stores. ECVS were available 80 to 100% of the times visited. In winter, availability of some of these ten ECV varied, with some ECV only available for only 20% of the times visited. The Chinese spinach, Chinese celery and Napa cabbage, were less available in the winter but were more available in the summer and fall and were available 80 to 100% of the times visited. Baby bok choy, eggplants, long beans, carrots, Chinese broccoli, and tomatoes were available 80 to 100% of the times visited. Chinese stores ECV Price differences: Apart from availability, prices were observed for the three seasons in these stores and price differences recorded.
Prices were lower in the fall season in Chinese-1\(^1\) for carrots and long beans (carrots cost $0.70/lb in winter, $0.67/lb in summer and $0.53/lb in fall with a \(\rho = 0.001\) while long beans cost $2.04/lb, $2.59/lb and $1.47/lb in winter, summer and fall respectively with a \(\rho = 0.01\)).

**Table 3. Price comparison over three seasons in Chinese-2 (ANOVA).**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Season</th>
<th>Number</th>
<th>Mean Price ($/lb)</th>
<th>Std</th>
<th>Sig ((\rho))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby bok choy</td>
<td>Winter</td>
<td>3</td>
<td>1.22</td>
<td>0.6807</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>4</td>
<td>1.89</td>
<td>0.1155</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>1.09</td>
<td>0.3033</td>
<td>0.02</td>
</tr>
<tr>
<td>Chinese Celery</td>
<td>Winter</td>
<td>1</td>
<td>2.99</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>4</td>
<td>2.57</td>
<td>0.5058</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>1.36</td>
<td>0.6456</td>
<td>0.02</td>
</tr>
<tr>
<td>Long beans</td>
<td>Winter</td>
<td>5</td>
<td>2.19</td>
<td>0.6442</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>5</td>
<td>2.55</td>
<td>0.0548</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>2.86</td>
<td>0.2066</td>
<td>0.04</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Winter</td>
<td>3</td>
<td>1.42</td>
<td>0.3786</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>5</td>
<td>1.01</td>
<td>0.1789</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>1.04</td>
<td>0.1225</td>
<td>0.04</td>
</tr>
</tbody>
</table>

In the case of Chinese-2 baby bok choy, Chinese celery and tomatoes had lower prices in the fall season compared to the winter and summer (Table 3).

ECV availability in South Asian stores: Observations in South Asian stores showed eggplants were available during most of my visits all through the three seasons in both stores. Okra and spinach availability was less in the winter recording the lowest availability in South Asian-1\(^2\) where okra was found only 20% of the times visited. Cabbages and tomatoes, consumed by most of the groups were available all the time in the summer and fall but their availability went down to only 60% of the times visited in winter. The Indian bitter melon

\(^1\) Chinese-1 referred to Chinese store one while Chinese-2 referred to Chinese store two.
\(^2\) South Asian-1 referred to South Asian store one
registered a high rate of availability. It was available between 80 to 100% of the times visited. However, in winter the Indian bitter melon was only available 60% of the times in store-2.

Cilantro was more available in the summer and fall season but not available in the winter 2011 at all. There were more vegetables available in the fall than in winter especially for vegetables that are grown locally such as tomatoes, Indian bitter melon, cabbage and spinach. Local production contributes to a high availability of ECV in the fall and summer. During the off-season (winter), the availability is low because there is no local production.

Table 4. Price comparison over three seasons in South Asian-2 (ANOVA).

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Season</th>
<th>Number</th>
<th>Mean Price ($/lb)</th>
<th>Std</th>
<th>Sig (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabbage</td>
<td>Winter</td>
<td>3</td>
<td>1.49</td>
<td>0.3464</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>5</td>
<td>1.49</td>
<td>0.2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>1.07</td>
<td>0.2041</td>
<td></td>
</tr>
<tr>
<td>Cauliflower</td>
<td>Winter</td>
<td>2</td>
<td>2.49</td>
<td>0.0000</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>4</td>
<td>2.24</td>
<td>0.5000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>1.51</td>
<td>0.2563</td>
<td></td>
</tr>
<tr>
<td>Baby onions</td>
<td>Winter</td>
<td>1</td>
<td>0.49</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>2</td>
<td>0.74</td>
<td>0.6238</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>4</td>
<td>2.62</td>
<td>1.1481</td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>Winter</td>
<td>2</td>
<td>1.34</td>
<td>0.7778</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>5</td>
<td>0.87</td>
<td>0.1095</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>0.73</td>
<td>0.0625</td>
<td></td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Winter</td>
<td>3</td>
<td>1.16</td>
<td>0.1539</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>5</td>
<td>0.89</td>
<td>0.1000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>6</td>
<td>0.61</td>
<td>0.1012</td>
<td></td>
</tr>
</tbody>
</table>

South Asian stores ECV Price differences: There was no difference in prices for all ECV sampled from South Asian-1 over the three seasons. While in South Asian-2, four vegetables (Cabbage, cauliflower, potatoes and tomatoes) showed a reducing mean price from winter to fall.

---

3 South Asian-2 referred to South Asian store two
with the lowest mean price observed in the fall. Baby onions, on the other hand were observed to increase with the highest mean price in the fall (Table 4). It is not clear why the two South Asian stores showed a difference in pricing trends across the season. The consistent prices observed in South Asian-1 may be a marketing strategy used to maintain customers because of the consistent prices. When production is low and prices in other stores are high, South Asian-1 maintains prices so making profits due to volumes sold. During high production when prices go down in other stores, South Asian-1 maintains prices (which may be slightly higher than other stores) and as a result makes bigger profits because of the dedicated customers who continue shopping there. South Asian-2 on the other hand lowers prices during the high production season, benefiting from profits as a result of volume sold and increases prices when production is low.

Availability of ECV in Afro-Caribbean stores: Availability of pumpkin, plantain, yellow yam, okra, tomatoes and cassava recorded a high consistency. These vegetables were available between 75 to 100% of the times visited in both the Afro-Caribbean stores. Supply of African eggplant was low, it was found only about 50% of the times visited in Afro-Caribbean-1 and the quality was always very poor. African eggplant was not found at all in Afro-Caribbean-2. Amaranth was less available in winter in both Afro-Caribbean stores; it was available only 20% and 33.3% of the times in winter in Afro-Caribbean-1 and Afro-Caribbean-2 respectively. In Afro-Caribbean-2 Amaranth was available 60% and 33.3% of the times in the summer and fall respectively. The availability of cocoyam leaves was generally low in both stores. In Afro-Caribbean-1 cocoyam leaves availability was 50% of the times visited while in Afro-Caribbean-2, cocoyam leaves were 20% available at all visits. However Cocoyam tubers were more

---

4 Afro-Caribbean-1 referred to Afro-Caribbean store one.
available because the tubers are able to withstand longer shelve life than the leaves. Most of the Afro-Caribbean vegetables that were sampled are not grown locally so the local seasons did not play a major role in their availability. The availability of the African egg plant and the cocoyam leaves was even lower compared to all the others. This is because of the high perishable nature of these two vegetables and yet these vegetables are all imported and not grown locally.

ECV Price difference in Afro-Caribbean stores: Looking at price changes over season, it was observed that in the Afro-Caribbean stores, tomato mean prices were significantly different by season (\( \rho = 0.000 \)) falling gradually from $1.99/lb to $1.59/lb in winter to summer and reaching the lowest mean price in the fall season ($1.09/lb).

In Afro-Caribbean-1\(^5\), okra was observed to have highest prices in the winter with a mean price of $3.95/lb and lowest in the summer with a mean price of $2.19/lb then increasing again in the fall to a mean price of $2.66/lb. In Afro-Caribbean-2 yellow yam also had significant mean price differences, however, a reverse trend was observed with yellow yam prices lowest in winter and progressively increasing from winter to fall with a mean price of ($2.34/lb in Winter, $2.55/lb in summer and $2.91/lb in fall with a \( \rho \) value of 0.02). This feature may be attributed to the local production of tomatoes and okra unlike yellow yam. The difference in price trend for the yellow yam may be more attributed to other factors such as cost of transportation, weather or production costs at place of origin, factors that were not looked at in this study.

It should be noted that this study considered yellow yam for pricing and not white yam. These two yams had different prices. The yellow yam is commonly eaten by the Afro-Caribbean of the Caribbean descent while the white yam is more commonly eaten by Afro-Caribbean of Afro-Caribbean-2 referred to Afro-Caribbean store two.
West African descent. Although these two yams are distinctly different, they both appeared to hold the same position in preference among the Afro-Caribbean (Adekunle et al., 2010). The yellow yam is more available in mainstream stores compared to the white yam.

ECV Availability in Mainstream stores: Availability of ten ECV in Mainstream stores showed baby bok choy, long beans, yellow yam, plantain, pumpkin, shanghai bok choy and sweet potatoes were available 80% to 100% of the visits in the two mainstream stores. In Mainstream-2, okra was available 80% of the visits in winter 2011, 60% of the visits in summer 2011 and only 16.67% of the visits in the fall 2011. In this same store, eggplants were less available in the fall 2011 (67.67%). Although Mainstream-1 had ECV, their availability varied tremendously in the three seasons, ranging from 100% for vegetables like cassava, long beans and sweet potatoes to as low as 0% (not available) for eggplants in the fall 2011 and winter, 33.33% for yellow yam in the fall 2011 and 16.67% okra in the fall. The availability of ECV in the fall in Mainstream-1 was noted to progressively reduce and ECV in the store were changed from a specialized area (area for only ECV) to a smaller place together with mainstream vegetables. Some of the vegetables were available all through the three seasons because of the constant supply of imported vegetables from the US, Mexico and the Dominican Republic.

Price differences in Mainstream stores: Mean prices for yellow yam in mainstream-2 (1.99/lb in winter, 2.56 in summer and 3.07/lb) and Shanghai bok choy in mainstream-1 (1.81 in winter, 2.48/lb in summer and 2.49/lb in fall) increased from winter to fall recording the highest price in fall. Plantain in mainstream-1 was more expensive in summer ($0.97/lb) and

---

6 Mainstream-2 referred to Mainstream store two
7 Mainstream-1 referred to Mainstream store one
lowest in winter at $0.89/lb while in mainstream-2 plantain were more expensive in winter ($0.89/lb), $0.73/lb in summer and lowest in fall with a price of $0.67/lb (ρ value = 0.000).

**Price comparison between two similar ethnic stores**

Mean prices were calculated for ten Chinese ECV. Results indicated no significant price difference for seven ECV except for carrots, long beans and Chinese spinach.

**Table 5. Mean price comparison for ECV between two Chinese ethnic stores.**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Store</th>
<th>Number</th>
<th>Mean Price ($/lb)</th>
<th>Std</th>
<th>Sig (ρ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrots</td>
<td>Chinese-1</td>
<td>13</td>
<td>0.62</td>
<td>0.087</td>
<td>0.02</td>
</tr>
<tr>
<td>Chinese Spinach</td>
<td>Chinese-1</td>
<td>10</td>
<td>1.43</td>
<td>0.118</td>
<td>0.002</td>
</tr>
<tr>
<td>Chinese Spinach</td>
<td>Chinese-2</td>
<td>8</td>
<td>0.97</td>
<td>0.373</td>
<td></td>
</tr>
<tr>
<td>Long beans</td>
<td>Chinese-1</td>
<td>14</td>
<td>2.03</td>
<td>0.6653</td>
<td>0.02</td>
</tr>
<tr>
<td>Long beans</td>
<td>Chinese-2</td>
<td>16</td>
<td>2.55</td>
<td>0.4544</td>
<td></td>
</tr>
</tbody>
</table>

The mean price for carrots ($0.62/lb in Chinese-1 and $0.89/lb in Chinese-2) and long beans ($2.03/lb in Chinese-1 and $2.55/lb in Chinese-2) were significantly higher (ρ = 0.02) in Chinese-2. The Chinese spinach was significantly higher (ρ = 0.002) in Chinese-1 than Chinese-2 (Table 5). Although we see a price difference between carrots, long beans and Chinese spinach, on the average most of the vegetable prices were comparably similar between the two Chinese stores.

**Table 6. Mean price comparison for ECV between south Asian ethnic stores.**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Store</th>
<th>Number</th>
<th>Mean Price ($/lb)</th>
<th>Std</th>
<th>Sig (ρ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby onions</td>
<td>South Asian-1</td>
<td>9</td>
<td>3.21</td>
<td>0.667</td>
<td>0.01</td>
</tr>
<tr>
<td>Baby onions</td>
<td>South Asian-2</td>
<td>7</td>
<td>1.78</td>
<td>1.148</td>
<td></td>
</tr>
</tbody>
</table>
Comparing the two South Asian stores, baby onions, tomatoes and eggplants were the only ECV with a significant mean price difference. In South Asian-1 and South Asian-2 respectively, baby onions had a mean price of $3.21/lb and $1.78/lb, tomatoes mean price was $1.16/lb and $0.83/lb while eggplants went for $0.99/lb and $1.18/lb (Table 6). On the average most of the vegetable prices were comparably similar between the two South Asian-stores. When these results are compared to the South Asian seasonal data above, we see that although South Asian-1 had consistent prices while South Asian-2 the prices changed with season, the mean prices over the three seasons for most of the ECV were not significantly different.

The next step was a look at the Afro-Caribbean stores. When the two Afro-Caribbean stores were compared, there were more ECV with significant price differences (Figure 2). Seven ECV among the ten sampled in the Afro-Caribbean stores were significantly different. Cassava, okra, Pumpkin, plantain, amaranth, tomatoes and eggplants showed marked price differences between Afro-Caribbean-1 and Afro-Caribbean-two. Afro-Caribbean-1 registered higher prices for most of the ECV compared to Afro-Caribbean-2 (Figure 2).
In the mainstream stores, eight out of ten ECV recorded significantly different mean prices between mainstream-1 and mainstream-2. The mean prices were Shanghai bok choy with mean price of $2.28/lb and $0.94/lb in mainstream-1 and mainstream-2 respectively, pumpkin, $2.20/lb in mainstream-1 and $1.16/lb in mainstream-2, yellow yam, $3.30/lb in mainstream-1 and $2.57/lb in mainstream-2, long beans $4.03/lb and $1.97/lb in mainstream-1 and mainstream-2 respectively, plantain $0.95/lb in mainstream-1 and $0.76/lb mainstream-2 and baby bok choy with mean price of $1.76/lb and $1.02/lb in mainstream-1 and mainstream-2 respectively. Mainstream-1 had higher prices for most of the ECV compared to Mainstream-2.

**Comparison between ethnic stores and mainstream stores**

**ECV Price comparison between mainstream store-one and Chinese Store:** In the Chinese stores, three ECV similar to those of the mainstream stores were sampled. These were long
beans, baby bok choy and eggplants (Figure 4). A comparison between mainstream-1 and Chinese-1 showed a price difference in two out of the three sampled ECV. Long beans recorded a mean price of $2.03/lb in Chinese-1 and $4.03/lb in mainstream-1 ($p = 0.000$). Baby bok choy was sold at a mean price of $1.13/lb in Chinese-1 and $1.76/lb in mainstream-1 ($p = 0.01$).

A comparison between Mainstream-1 and Chinese-2 showed long beans with a mean price of $2.22/lb in Chinese-2 and $4.03/lb in mainstream-1. Mean price for long beans was significantly higher in mainstream-1 than in Chinese-2 ($p = 0.000$).

![Price comparison graph](image)

**Figure 4. Price comparison between mainstream-1 and South Asian stores.**

**ECV price comparison between mainstream store-one and South Asian stores**: Price comparison of two ECV present in mainstream and South Asian stores was done. The prices in the South Asian-1 and mainstream-1 was significantly different ($p = 0.000$) between both the ECV. The mean price for eggplants was $1.00/lb in South Asian-1 and $1.65/lb in mainstream-1 while okra cost $2.37/lb and $4.14/lb in the South Asian-1 and mainstream-1 respectively.
The mean prices for okra ($4.14/lb and $2.55/lb) and eggplants ($1.65/lb and $1.18/lb) were also significantly higher in mainstream-1 than in the South Asian-2 (Figure 3).

**ECV price comparison between mainstream store-one and Afro-Caribbean stores:** Five ECV were common to both the mainstream stores and the Afro-Caribbean stores (Figure 4) and a comparison of price with Afro-Caribbean-1 showed three of the ECV had significantly different prices compared to mainstream-1.

The mean price for okra ($4.14/lb and $2.91/lb) and plantain ($0.95/lb and $0.90/lb) were higher in mainstream-1 while the mean price for cassava ($0.89/lb and $1.42/lb) was significantly higher ($p = 0.01$) in Afro-Caribbean-1. On the other hand all mean prices were significantly higher in mainstream-1 compared to Afro-Caribbean-2 for the five ECV observed (pumpkin, cassava, yellow yam, okra and plantain) (Figure 4).
Mean price comparison between mainstream-2 and other ethnic stores

There was no significant price difference between mainstream-2 and Chinese-1. But a comparison between Chinese-2 and mainstream-2 showed prices for long beans and baby bok choy significantly higher in Chinese-2 compared to mainstream-2. The mean price for long beans was $2.55/lb in Chinese-2 and $1.97/lb in mainstream-2 ($p = 0.002) . The mean price for baby bok choy was $1.37/lb in Chinese-2 and $1.02/lb in mainstream-2 ($p = 0.03)$.

Table 7. Price comparison between mainstream-2 and Afro-Caribbean-1.

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Store</th>
<th>Number</th>
<th>Mean Price ($/lb)</th>
<th>Std</th>
<th>Sig ($p$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Okra</td>
<td>Afro-Caribbean-1</td>
<td>16</td>
<td>2.91</td>
<td>0.9134</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Mainstream-2</td>
<td>8</td>
<td>2.20</td>
<td>0.2665</td>
<td></td>
</tr>
<tr>
<td>Pumpkin</td>
<td>Afro-Caribbean-1</td>
<td>14</td>
<td>1.78</td>
<td>0.4244</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Mainstream-2</td>
<td>14</td>
<td>1.161</td>
<td>0.5254</td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td>Afro-Caribbean-1</td>
<td>15</td>
<td>1.42</td>
<td>0.6709</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Mainstream-2</td>
<td>15</td>
<td>0.96</td>
<td>0.0575</td>
<td></td>
</tr>
<tr>
<td>Plantain</td>
<td>Afro-Caribbean-1</td>
<td>15</td>
<td>0.90</td>
<td>0.0258</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Mainstream-2</td>
<td>16</td>
<td>0.76</td>
<td>0.0998</td>
<td></td>
</tr>
</tbody>
</table>

Mean prices were much higher in Afro-Caribbean-1 compared to mainstream-2 for four out of five ECV (Table 7). A comparison between mainstream-2 and Afro-Caribbean-2 showed a close similarity in prices with the exception of okra whose mean price was $1.24/lb in Afro-Caribbean-2 and $2.20/lb in mainstream-2 ($p= 0.002) . Cassava mean price was $0.72/lb in Afro-Caribbean-2 and $0.96/lb in mainstream-2 ($p = 0.03$).

Objective three: To examine price trends and availability of ethno-cultural vegetables over three months (summer) in two main-stream stores in the city of Guelph.
Availability and price comparison of ECV in mainstream stores in Guelph

Thirty six (36) ECVs were observed for price changes in two mainstream stores in Guelph (mainstream-1 and mainstream-2) over a period of three months. The prices for the 36 vegetables were then compared using the student’s T-test to see whether there was a price difference between the two stores.

Out of the 36 ECV, ten vegetables in the two mainstream stores were found to have a significant price difference. Seven out of the ten ECV were more expensive in mainstream-1 compared to mainstream-2. The vegetables that were more expensive in mainstream-1 were Chinese bitter melon with mean price of ($ 3.56/lb\textsuperscript{8}; $1.57/lb\textsuperscript{9}, \rho = 0.00), Cassava ($1.15/lb\textsuperscript{8}; $0.95/lb\textsuperscript{9}, \rho = 0.00), Chinese eggplant ($2.66/lb\textsuperscript{8}; $0.99/lb\textsuperscript{9}, \rho = 0.01), plantain ($0.96/lb\textsuperscript{8}; $0.69/lb\textsuperscript{9}, \rho = 0.000), Chinese cabbage – Nappa ($0.85/lb\textsuperscript{8}; $0.65/lb\textsuperscript{9}, \rho = 0.000), Coriander ($1.65/lb\textsuperscript{8}; $1.41/lb\textsuperscript{9}, \rho = 0.01) and the potatoes – white ($0.98/lb\textsuperscript{8}; $0.97/lb\textsuperscript{9}, \rho = 0.004).

Tomatoes - GH Red on vine ($0.69/lb\textsuperscript{8}; $1.79\textsuperscript{9}, \rho = 0.000), tomatoes – HH Red ($1.05/lb\textsuperscript{8}; $1.37/lb\textsuperscript{9}, \rho = 0.05) and okra ($1.08/lb\textsuperscript{8}; $1.83/lb\textsuperscript{9}, \rho = 0.01) were more expensive in mainstream-2 compared to mainstream-1. In general prices for vegetables in mainstream-1 were more expensive than those in mainstream-2.

Availability of ten most preferred Chinese ECV: Among the Chinese ten most preferred vegetables, mainstream-1 supplied five of the ten most preferred while mainstream-2 supplied six. There was a variation in the presence of these ECV supplied by these stores. Presence of the five ECV in mainstream-1 ranged from between 60 -100% with baby bok choy registering the lowest chances of being present (60%) although it is the most preferred. In mainstream-2

---

\textsuperscript{8} Mainstream-1
\textsuperscript{9} Mainstream-2
chances of finding the six ECV varied between 40 – 100% with Chinese broccoli recording the lowest chances of its being available in the store.

Availability of ten most preferred South Asian ECV: Mainstream-1 supplied seven out of ten of the most preferred South Asian ECV while mainstream-2 supplied eight. The consistency of the supply varied between 60 -100% in mainstream-1 and 70 – 100% in mainstream-2.

Availability of ten most preferred Afro-Caribbean ECV: Looking at the Afro-Caribbean list of ten most preferred ECV; mainstream-1 stocked only five of them while mainstream-2 carried seven. Chances of finding these ECV in stock were higher in mainstream-2 ranging between 90 –100% compared to mainstream-1 with a likelihood of finding the vegetable being 60 -100% depending on the vegetable.

In general, mainstream stores did not carry many of the ECV recording zero availability for some of the most preferred ECV while those that were supplied, consistency were poor. Mainstream-2 had a bigger stock of the ECV compared to mainstream-1.

**Price trends for a few selected vegetables in two mainstream stores in Guelph City.**

Prices trends were then studied on a few vegetables (Bok choy, baby bok choy, Shanghai bok choy, cabbage - green and cabbage - red) and these trends were compared for the two mainstream stores.
Figure 6. Price trends for bok choy in mainstream stores in Guelph.

Figure five shows the higher prices in mainstream-1. Although the prices are higher in mainstream-1, they are more stable compared to mainstream-2.

Figure 7. Price trends for cabbage-green in mainstream stores in Guelph.
Similar to the results shown in figure five, figure six shows higher prices for green cabbage in mainstream-1 compared to mainstream-2.

Prices were generally higher in mainstream-1 compared to mainstream-2. Whereas prices were lower most of the times in mainstream-2, the prices were less stable in this store, fluctuating at each visit. Mainstream-2 recorded more erratic prices than mainstream-1 whose prices were more consistent. This is true for the five vegetables compared.

Objective four (4). To identify factors that influence selection of ethnic retail store to purchase of ECV in the GTA.

Based on data completed in 2009 on the main grocery buyers in the cultural households, I examined the factors that influenced respondents’ selection of retail stores for vegetable shopping. A model was specified with purchase in ethnic store as the dependent variable.

Table 8 below presents the results for all the respondents.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%age allocated to vegetables (A5)</td>
<td>0.017</td>
<td>0.006</td>
<td>9.171</td>
<td>1</td>
<td>0.002</td>
<td>1.017</td>
</tr>
<tr>
<td>Education(Educ)</td>
<td>0.537</td>
<td>0.406</td>
<td>1.748</td>
<td>1</td>
<td>0.186</td>
<td>1.71</td>
</tr>
<tr>
<td>Age (E1)</td>
<td><strong>0.023</strong></td>
<td><strong>0.009</strong></td>
<td><strong>5.746</strong></td>
<td>1</td>
<td>0.017</td>
<td><strong>1.023</strong></td>
</tr>
<tr>
<td>Gender (E2)</td>
<td>-0.055</td>
<td>0.206</td>
<td>0.072</td>
<td>1</td>
<td>0.789</td>
<td>0.946</td>
</tr>
<tr>
<td>Marital Status (E3)</td>
<td>0.001</td>
<td>0.177</td>
<td>0</td>
<td>1</td>
<td>0.997</td>
<td>1.001</td>
</tr>
<tr>
<td>Household size (E6)</td>
<td>0.071</td>
<td>0.072</td>
<td>0.979</td>
<td>1</td>
<td>0.322</td>
<td>1.073</td>
</tr>
<tr>
<td>Years Spent in Canada (D4)</td>
<td>-0.01</td>
<td>0.01</td>
<td>1.03</td>
<td>1</td>
<td>0.31</td>
<td>0.99</td>
</tr>
<tr>
<td>Eat significant amount of vegetables (A1)</td>
<td><strong>1.264</strong></td>
<td><strong>0.286</strong></td>
<td><strong>19.568</strong></td>
<td>1</td>
<td>0</td>
<td><strong>3.541</strong></td>
</tr>
<tr>
<td>Importance of availability (D1)</td>
<td>-0.08</td>
<td>0.336</td>
<td>0.057</td>
<td>1</td>
<td>0.812</td>
<td>0.923</td>
</tr>
<tr>
<td>Importance of Language (D2)</td>
<td><strong>-0.579</strong></td>
<td><strong>0.242</strong></td>
<td><strong>5.727</strong></td>
<td>1</td>
<td>0.017</td>
<td><strong>0.561</strong></td>
</tr>
<tr>
<td>Importance of Selection (D3)</td>
<td>0.438</td>
<td>0.358</td>
<td>1.496</td>
<td>1</td>
<td>0.221</td>
<td>1.549</td>
</tr>
<tr>
<td>Importance of Freshness (D4)</td>
<td>1.624</td>
<td>1.09</td>
<td>2.219</td>
<td>1</td>
<td>0.136</td>
<td>5.073</td>
</tr>
<tr>
<td>Importance of Quality (D5)</td>
<td>Importance of Price (D6)</td>
<td>Importance of Packaging (D7)</td>
<td>Importance of place of Origin (D8)</td>
<td>Importance of taste</td>
<td>Importance of Medicinal Value</td>
<td>Constant</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------</td>
<td>-----------------------------</td>
<td>----------------------------------</td>
<td>-------------------</td>
<td>-------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>-2.023</td>
<td>-0.293</td>
<td>-0.765</td>
<td>0.397</td>
<td>-0.346</td>
<td>-0.075</td>
<td>0.804</td>
</tr>
<tr>
<td>1.665</td>
<td>0.303</td>
<td>0.223</td>
<td>0.227</td>
<td>0.518</td>
<td>0.241</td>
<td>1.545</td>
</tr>
<tr>
<td>1.476</td>
<td>0.938</td>
<td>11.808</td>
<td>3.057</td>
<td>0.448</td>
<td>0.097</td>
<td>0.271</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0.001</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.224</td>
<td>0.333</td>
<td>0.465</td>
<td>0.08</td>
<td>0.503</td>
<td>0.755</td>
<td>0.603</td>
</tr>
<tr>
<td>0.132</td>
<td>0.746</td>
<td></td>
<td></td>
<td>0.707</td>
<td>0.927</td>
<td>2.234</td>
</tr>
</tbody>
</table>

Table 8 shows five attributes which were important for store selection and the relationship is described by the equation:

From the results above the odds of one shopping in an ethnic store (Logit (P)) is expressed by the equation:

\[ \text{Logit}(P) = 0.804 + (0.017 * a5) + (0.023 * e1) + (1.264 * a1) - (0.579 * d2) (0.765 * d7) \]

From these results we see that the log of the odds of a person selecting an ethnic store for his/her vegetable shopping were positively related to the amount of money one spent on vegetables per month, one’s age, and to whether one ate significant amount of vegetables. On the other hand the log of the odds of a person selecting an ethnic store for his/her vegetable shopping was negatively related to the value one attached to importance of language and importance of packaging. In other words, the more one spent on vegetables, the more likely this person was to select an ethnic store for vegetable shopping. The older the consumer, the more likely that he/she would select an ethnic store for shopping and those who ate vegetables were more likely to select ethnic stores than those who did not eat them. Conversely, importance of language and packaging which were negative indicated that those who valued language and packaging were less likely to shop at ethnic stores than those who did not think language and packaging are important.
The data was then split up into the three ethnic groups (Chinese, South Asian and Afro-Caribbean) and the binary logistic regression analyses done on each of the ethnic groups.

Table 9. Factors that affect Chinese decision to purchase in an ethnic store (250 respondents).

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%age allocated to vegetables</td>
<td>0.011</td>
<td>0.011</td>
<td>0.974</td>
<td>1</td>
<td>0.324</td>
<td>1.011</td>
</tr>
<tr>
<td>Education (Educ)</td>
<td>0.227</td>
<td>0.921</td>
<td>0.061</td>
<td>1</td>
<td>0.805</td>
<td>1.255</td>
</tr>
<tr>
<td>Age (E1)</td>
<td>-0.005</td>
<td>0.023</td>
<td>0.042</td>
<td>1</td>
<td>0.839</td>
<td>0.995</td>
</tr>
<tr>
<td>Gender (E2)</td>
<td>-0.514</td>
<td>0.473</td>
<td>1.183</td>
<td>1</td>
<td>0.277</td>
<td>0.598</td>
</tr>
<tr>
<td>Marital Status (E3)</td>
<td>0.782</td>
<td>0.460</td>
<td>2.891</td>
<td>1</td>
<td>0.089</td>
<td>2.185</td>
</tr>
<tr>
<td>Household size (E6)</td>
<td>0.214</td>
<td>0.173</td>
<td>1.530</td>
<td>1</td>
<td>0.216</td>
<td>1.238</td>
</tr>
<tr>
<td>Years Spent in Canada (D4)</td>
<td><strong>0.048</strong></td>
<td><strong>0.021</strong></td>
<td><strong>5.127</strong></td>
<td>1</td>
<td><strong>0.024</strong></td>
<td><strong>8.144</strong></td>
</tr>
<tr>
<td>Eat signif vegetables (A1)</td>
<td><strong>2.097</strong></td>
<td><strong>0.576</strong></td>
<td><strong>13.270</strong></td>
<td>1</td>
<td><strong>0.000</strong></td>
<td><strong>8.144</strong></td>
</tr>
<tr>
<td>Importance of availabil (D1)</td>
<td>-0.518</td>
<td>0.682</td>
<td>0.576</td>
<td>1</td>
<td>0.448</td>
<td>0.596</td>
</tr>
<tr>
<td>Importance of Language (D2)</td>
<td>-0.684</td>
<td>0.535</td>
<td>1.637</td>
<td>1</td>
<td>0.201</td>
<td>0.504</td>
</tr>
<tr>
<td>Importance of Selection (D3)</td>
<td>-0.033</td>
<td>0.793</td>
<td>0.002</td>
<td>1</td>
<td>0.967</td>
<td>0.968</td>
</tr>
<tr>
<td>Importance of Freshness (D5)</td>
<td>-15.904</td>
<td>40193.051</td>
<td>0.000</td>
<td>1</td>
<td>1.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Importance of Price (D6)</td>
<td>-0.187</td>
<td>0.552</td>
<td>0.115</td>
<td>1</td>
<td>0.735</td>
<td>0.830</td>
</tr>
<tr>
<td>Importance of Packaging (D7)</td>
<td>-0.735</td>
<td>0.467</td>
<td>2.476</td>
<td>1</td>
<td>0.116</td>
<td>0.480</td>
</tr>
<tr>
<td>Importance place Origin (D8)</td>
<td>-0.247</td>
<td>0.479</td>
<td>0.267</td>
<td>1</td>
<td>0.606</td>
<td>0.781</td>
</tr>
<tr>
<td>Importance of ECV taste</td>
<td>-1.958</td>
<td>1.338</td>
<td>2.143</td>
<td>1</td>
<td>0.143</td>
<td>0.141</td>
</tr>
<tr>
<td>Importance of Medic Value</td>
<td>-0.606</td>
<td>0.529</td>
<td>1.312</td>
<td>1</td>
<td>0.252</td>
<td>0.546</td>
</tr>
<tr>
<td>Constant</td>
<td>19.075</td>
<td>4.193.051</td>
<td>0.000</td>
<td>1</td>
<td>1.000</td>
<td>192300000.000</td>
</tr>
</tbody>
</table>

Results in table 9 for the Chinese group indicated that selection of store for vegetable shopping was mainly influenced by the number of years spent in Canada (sig = 0.02) and whether or not the respondent consumed a significant amount of vegetables (sig = 0.000). The chance of selecting an ethnic store for vegetable shopping among the Chinese community was positively related to the number of years spent in Canada and also positively related to whether the respondent ate a significant amount of vegetables. The more years spent in Canada the more likely that a person would select an ethnic store for vegetable shopping and those who ate a
significant amount of vegetables were more likely to select ethnic stores than those who did not eat a significant amount of vegetables.

Table 10. Factors that affect south Asians' decision to purchase in an ethnic store (250 respondents).

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%age allocated to vegetables</td>
<td>0.01</td>
<td>0.012</td>
<td>0.748</td>
<td>1</td>
<td>0.387</td>
<td>1.01</td>
</tr>
<tr>
<td>Education level</td>
<td>1.674</td>
<td>0.846</td>
<td>3.914</td>
<td>1</td>
<td>0.048</td>
<td>5.334</td>
</tr>
<tr>
<td>Age (E1)</td>
<td>0.035</td>
<td>0.018</td>
<td>3.82</td>
<td>1</td>
<td>0.051</td>
<td>1.035</td>
</tr>
<tr>
<td>Gender (E2)</td>
<td>-0.793</td>
<td>0.416</td>
<td>3.638</td>
<td>1</td>
<td>0.056</td>
<td>0.453</td>
</tr>
<tr>
<td>Marital status (E3)</td>
<td>-0.736</td>
<td>0.36</td>
<td>4.184</td>
<td>1</td>
<td>0.041</td>
<td>0.479</td>
</tr>
<tr>
<td>Household size (E6)</td>
<td>-0.125</td>
<td>0.132</td>
<td>0.906</td>
<td>1</td>
<td>0.341</td>
<td>0.882</td>
</tr>
<tr>
<td>Years spent in Canada (D4)</td>
<td>-0.041</td>
<td>0.022</td>
<td>3.478</td>
<td>1</td>
<td>0.062</td>
<td>0.96</td>
</tr>
<tr>
<td>Eat significant vegetables (A1)</td>
<td>0.791</td>
<td>0.636</td>
<td>1.545</td>
<td>1</td>
<td>0.214</td>
<td>2.206</td>
</tr>
<tr>
<td>Importance of store availability</td>
<td>0.642</td>
<td>0.649</td>
<td>0.98</td>
<td>1</td>
<td>0.322</td>
<td>1.901</td>
</tr>
<tr>
<td>Importance of Language</td>
<td>-0.873</td>
<td>0.509</td>
<td>2.942</td>
<td>1</td>
<td>0.086</td>
<td>0.418</td>
</tr>
<tr>
<td>Importance of Selection/ variety</td>
<td>1.506</td>
<td>0.756</td>
<td>3.969</td>
<td>1</td>
<td>0.046</td>
<td>4.507</td>
</tr>
<tr>
<td>Importance of Fresh</td>
<td>-19.76</td>
<td>40192.95</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Importance of Quality</td>
<td>20.28</td>
<td>40192.95</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>6.42E+08</td>
</tr>
<tr>
<td>Importance of Price</td>
<td>0.182</td>
<td>0.584</td>
<td>0.097</td>
<td>1</td>
<td>0.756</td>
<td>1.2</td>
</tr>
<tr>
<td>Importance of Package</td>
<td>-0.336</td>
<td>0.429</td>
<td>0.614</td>
<td>1</td>
<td>0.433</td>
<td>0.715</td>
</tr>
<tr>
<td>Importance of place Origin</td>
<td>1.337</td>
<td>0.486</td>
<td>7.574</td>
<td>1</td>
<td>0.006</td>
<td>3.806</td>
</tr>
<tr>
<td>Importance of Taste</td>
<td>0.842</td>
<td>1.091</td>
<td>0.596</td>
<td>1</td>
<td>0.44</td>
<td>2.322</td>
</tr>
<tr>
<td>Importance of Medicinal value</td>
<td>-0.485</td>
<td>0.5</td>
<td>0.94</td>
<td>1</td>
<td>0.332</td>
<td>0.616</td>
</tr>
<tr>
<td>Constant</td>
<td>0.944</td>
<td>3.442</td>
<td>0.075</td>
<td>1</td>
<td>0.784</td>
<td>2.569</td>
</tr>
</tbody>
</table>

Among the South Asian communities, the chance that a consumer will select an ethnic store for vegetable shopping was positively related to education level, age, perceived importance of selection/variety and importance of place of origin to the consumer (Table 10). The chance that a consumer will select an ethnic store for vegetable shopping was negatively related to marital status. The married South Asians were less likely to select ethnic stores for their vegetable shopping while those who valued selection/variety and place of origin for the vegetables were more likely to select an ethnic store for their vegetable shopping. The higher the
education level, the higher the likelihood that the South Asians select an ethnic store for vegetable shopping. Age also had a positive effect so the older consumers were more likely to select an ethnic store for their vegetable shopping.

The factors that influenced ethnic store selection for vegetable shopping among South Asians included education level, age, marital status, place of origin and variety /selection option. According to the results marital status had a negative effect on selection of ethnic store.

**Table 11. Factors that affect Afro-Caribbean decision to purchase in an ethnic store (250 respondents).**

<table>
<thead>
<tr>
<th>Factor</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%age allocated to vegetables (A5)</td>
<td>0</td>
<td>0.011</td>
<td>0</td>
<td>1</td>
<td>0.991</td>
<td>1</td>
</tr>
<tr>
<td>Education level (Educ)</td>
<td>-0.08</td>
<td>0.689</td>
<td>0.013</td>
<td>1</td>
<td>0.908</td>
<td>0.923</td>
</tr>
<tr>
<td>Age (E1)</td>
<td>0.019</td>
<td>0.017</td>
<td>1.216</td>
<td>1</td>
<td>0.27</td>
<td>1.019</td>
</tr>
<tr>
<td>Gender (E2)</td>
<td>0.439</td>
<td>0.389</td>
<td>1.275</td>
<td>1</td>
<td>0.259</td>
<td>1.552</td>
</tr>
<tr>
<td>Marital status (E3)</td>
<td>0.509</td>
<td>0.311</td>
<td>2.676</td>
<td>1</td>
<td>0.102</td>
<td>1.664</td>
</tr>
<tr>
<td><strong>Household size (E6)</strong></td>
<td><strong>0.28</strong></td>
<td><strong>0.138</strong></td>
<td><strong>4.156</strong></td>
<td>1</td>
<td><strong>0.041</strong></td>
<td><strong>1.324</strong></td>
</tr>
<tr>
<td>Years spent in Canada (D4)</td>
<td>-0.02</td>
<td>0.019</td>
<td>1.653</td>
<td>1</td>
<td>0.199</td>
<td>0.976</td>
</tr>
<tr>
<td><strong>Consume significant vegetables (A1)</strong></td>
<td><strong>1.626</strong></td>
<td><strong>0.597</strong></td>
<td><strong>7.404</strong></td>
<td>1</td>
<td><strong>0.007</strong></td>
<td><strong>5.081</strong></td>
</tr>
<tr>
<td>Importance of Availability (D1)</td>
<td>-0.17</td>
<td>0.668</td>
<td>0.07</td>
<td>1</td>
<td>0.792</td>
<td>0.838</td>
</tr>
<tr>
<td>Importance of Language (D2)</td>
<td>-0.13</td>
<td>0.415</td>
<td>0.11</td>
<td>1</td>
<td>0.741</td>
<td>0.872</td>
</tr>
<tr>
<td>Importance of Selection (D3)</td>
<td>0.4</td>
<td>0.724</td>
<td>0.305</td>
<td>1</td>
<td>0.581</td>
<td>1.492</td>
</tr>
<tr>
<td>Importance of Freshness (D4)</td>
<td>21.54</td>
<td>28203.31</td>
<td>0</td>
<td>1</td>
<td>0.999</td>
<td>2.2E+09</td>
</tr>
<tr>
<td>Importance of Quality (D5)</td>
<td>-43.3</td>
<td>35128.47</td>
<td>0</td>
<td>1</td>
<td>0.999</td>
<td>0</td>
</tr>
<tr>
<td>Importance of Price (D6)</td>
<td>-0.52</td>
<td>0.645</td>
<td>0.666</td>
<td>1</td>
<td>0.414</td>
<td>0.591</td>
</tr>
<tr>
<td><strong>Importance of Package (D7)</strong></td>
<td><strong>-1.09</strong></td>
<td><strong>0.416</strong></td>
<td><strong>6.968</strong></td>
<td>1</td>
<td><strong>0.008</strong></td>
<td><strong>0.333</strong></td>
</tr>
<tr>
<td>Importance of place of Origin (D8)</td>
<td>0.455</td>
<td>0.416</td>
<td>1.199</td>
<td>1</td>
<td>0.274</td>
<td>1.577</td>
</tr>
<tr>
<td>Importance of taste (D9)</td>
<td>0.001</td>
<td>0.936</td>
<td>0</td>
<td>1</td>
<td>0.999</td>
<td>1.001</td>
</tr>
<tr>
<td>Importance of Medicinal value (D10)</td>
<td>0.695</td>
<td>0.475</td>
<td>2.137</td>
<td>1</td>
<td>0.144</td>
<td>2.004</td>
</tr>
<tr>
<td>Constant</td>
<td>18.83</td>
<td>20942.37</td>
<td>0</td>
<td>1</td>
<td>0.999</td>
<td>1.5E+08</td>
</tr>
</tbody>
</table>

The log of the odds for an Afro-Caribbean selecting an ethnic store for his/her vegetable shopping was positively related to household size and whether or not the respondent consumed significant amount of vegetables (table 11). Afro-Caribbean with large family sizes and those
who ate a significant amount of vegetables were more likely to select ethnic stores for their vegetable shopping. While the log of the odds for an Afro-Caribbean selecting an ethnic store for his/her vegetable shopping was negatively related to the value one attached to packaging. Afro-Caribbean who valued packaging as an important attribute were less likely to select ethnic stores for their vegetable shopping.

Among the Afro-Caribbean decision to purchase in an ethnic store (y) was affected by household size, whether or not the respondent consumed significant amount of vegetables and perceived importance of packaging.

Sub-section two: Interviews with key informants

Objective five (5) To assess service provision, store structuring and marketing strategies in eight retail stores in the GTA.

Interviews with ethnic store owners revealed interesting information. One interesting thing that seemed to be mentioned by all the respondents was the fact that ethnic retail business was under sole proprietorship whether it was either family owned or owned by an individual. Although some of the ethnic store owners said they had more than one store such as the South Asian store owner, the rest said they owned only one-store. Ethnic stores especially the Afro-Caribbean stores had the retail functions under one-person performance. Where an individual was the sole employee performing multiple functions such as sales person, cashier and customer service manager.

Structure of ECV marketing; retail analysis

The information gathered from respondents illustrates that ethnic stores are not a new venture in Toronto but have been in existence for a long time. Some of the key informants
mentioned they had been running their stores for as long as 22 years, however others said they just entered the ECV retail business and have been in operation for as little as three years.

Ethnic stores have long been operated in Toronto; however the increased numbers of immigrants has led to even bigger opportunities in these areas hence more ethnic stores are opening. Apart from the increased immigrant population, the number of health conscious Canadians interested in healthy eating has also grown and as a result influenced the food choices made by consumers. Vegetables have been selected as they offer a perfect substitute for the heavy starch and high cholesterol foods as expressed in the response by a male South Asian store manager. “Today more people are concerned about what they eat. They prefer healthy food to junk; they would rather make a snack on fruits or vegetables.” With increased demand for ECV, more entrepreneurs have moved into the ECV market and even those already in the market have expanded their businesses as further explained by this respondent:

“We started this business here because there were not a lot of Indian stores so it was not easy to get Indian products. We started selling only spices, lentils, and beans and all these were got direct from India. We started off with one store and at that time the population of Indians in that area was very small. Then we opened this store here because the Punjab population was high. We are now opening a third store.”

Establishment of ethnic stores has continued to grow and this is partly a result of the growing demand for ECV. The growing immigration yet limited ECV supply played a major role in the establishment of some of the ethnic stores. There was an increased demand for ECV with limited ethnic stores unable to meet the growing demand for ethnic foods. The Afro-Caribbean store owner told us that:

“Since the store opened there has been an increasing number of Afro-Caribbean coming in to do their grocery shopping in the store and this has been very encouraging.”
Apart from an increased clientele population there has also been a change in the clientele’s make-up as ethnic stores have changed their produce to accommodate a mixed ethnicity as younger generation clientele get more involved in grocery shopping as noted by the male South Asian store Owner:

“In the beginning we had mainly Indian and Punjab clienteles, about 95%, but these have changed over time and now we have about 80% Indian and 20% mixed ethnicity. In Markham where we have another store the clientele is a more mixed ethnicity”.

The younger clientele is more open to change and is always trying out new stores. This may be out of convenience and how much a store may be able to offer. A store carrying more of the needed items is more likely to attract more shoppers as they are able to do all their grocery shopping at one stop. But it may also be about store appearance and cleanliness as the South Asian Store owner continues to elaborate on his experience:

“My uncles cannot go grocery shopping anymore; we go grocery shopping now, right? So my mom and I can be like we do not want to go to Indian shops we want to go to a clean grocery store so we can get everything there. Someone would not think that we had to change a little bit. So the younger generation will be coming to our store.”

**Clientele base and marketing strategies for the ECV retail market:** Three of the four key informants mentioned that most of their ECV customers were female because they were the ones who do the cooking. The South Asian store owner estimated his clientele base to be close to 80% female shoppers saying that “in the Indian community most women do the grocery shopping.” While another South Asian store owner added that “most shoppers are women because women are the ones who know what they need to cook.”

However, it was reported that the gender composition has changed with an increasing number of male shoppers over time. The Afro-Caribbean store owner said his clientele was
equally distributed with an equal number of both male and female shopping for ECV. This scenario clearly depicts the changing nature of the population towards food. Regardless of gender people are getting more interested in ECV as part of their diet.

The ECV market is faced with increasing competition as more players join the market. There is both inter-ethnic (across ethnicities) and intra-ethnic (within similar ethnicities) store competition and more recently from mainstream stores which have entered the business. With the stiff competition, there is a need to set strategies to maintain the clientele. Store owners have endeavoured to understand the needs of their clienteles and this has helped to maintain a good stock of the most demanded vegetables. This is clearly illustrated in the response from the Afro-Caribbean store owner quoted as saying:

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We need to know which vegetables sell most. In our case we deal with Afro-Caribbeans so we sell mainly Afro-Caribbean vegetables and we sell vegetables like the bitter leaf, gum leaf and cassava leaves among others, these are bought particularly by Afro-Caribbeans.
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The store owners have also combined ECV with other grocery items to enable a one stop grocery shopping. This was a strategy benchmarked from the mainstream stores as further explained by the Afro-Caribbean store owner:

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We also sell other vegetables which are bought across ethnicities such as okra, tomatoes, eggplants, potatoes. Apart from vegetables we also sell fish and meat and we also have a whole section on other household groceries.
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Ethnic store owners have also stocked not only foods for their ethnic groups but included vegetables from other ethnic groups. This not only increases the traffic flow in their stores but attracts other people of other ethnicities into the store, a strategy evident in the Chinese stores which carry many of the Afro-Caribbean foods.
The informants stressed the importance of a diversified supply which targets a wider range of ethnicities. The Afro-Caribbean store owner listed his clientele as composed mainly of Afro-Caribbean, West Indies, Filipinos, the Indian as well as a few Caucasians who come in for particular items. In the Chinese store the clientele was made up of West Indians, Chinese, Latino, Africans, Afro-Caribbean and Caucasians. This was clearly stated by the South Asian store owner:

``We started off selling only Indian products and before our clientele were only people from India, especially the Punjab. Now we sell everything even other produce especially what you could not get from other stores.”

Improvement in store layout and display has been another strategy used to attract customers. The Chinese ethnic stores were seen to be more organized and closely emulating the larger mainstream grocery stores one of their competitors in the ECV business. The Chinese may be better organized partly because of the long time the Chinese have been involved in ECV retail business but may also be a result of the fact that many of the employees in Chinese stores have vast experience working in mainstream stores so they have borrowed ideas and practices from mainstream stores to their stores to improve performance as explained by the Chinese male store owner:

“Most of the people who own Chinese ethnic stores worked in mainstream stores before, and we learn from these stores and come and introduce some of those ideas in our stores”

The interviewees also mentioned that their clients continued coming back to these stores because of the relationships built overtime while another related clientele commitment to the period the store had been in existence. The South Asian Store owner explained that his store was
one of the first ethnic stores in the area and has therefore developed and maintained strong ties with its customers who have continued to do their shopping there. He states that,

“This is the oldest ethnic store in the area and so many of these people are used to us since they have always shopped here. They are like family we know what they want and how they like it. Sometimes when they do not get what they want we give them a call when it is available.”

Quality of produce was another issue he mentioned as a strategy for maintaining clientele base. The quality of the produce was considered mainly in terms of cleanliness of the produce.

“We do our own packaging of lentils and our produce is kept clean. We have a machine which cleans the lentils.” The Chinese store owner mentioned that size of the store was what attracted clients. “It is a larger store and the biggest in the area with a good stock of ethnic vegetables”, mentioned. The Afro-Caribbean store owner talked of both cultural ties and size of stock as playing a role in maintaining clientele ties, mentioning that a good stock and good relationships created with clients was vital for their survival.

**Pricing of ECV on the retail market**

Price determination was an interesting factor to study as it was realized that price determination was used both as a strategy to capture customers through low prices hence increased sales but was also a way of making profits for the business. This is what the Afro Caribbean store owner had to say:

“Our store has the best prices. Our prices are low so people come here because of good price.” While the Chinese store owner said “We always have a lot of vegetables on sale and many people come to buy vegetables on sale, our customers make good saving on sales.”
Overtime small scale retail store owners have been faced with an inevitable situation to lower their prices due to prevailing market conditions controlled by some giant retailers. With the bigger stores continuously lowering their prices they have no choice but to comply. Most of the respondents said their profits were minimal as prices for vegetables had gone down over the years. This was especially true for vegetables that are sold by the cheaper mainstream stores as captured in the South Asian store owner’s response:

“Our prices are low because other bigger stores put their prices very low so we are forced to reduce ours too.” And another respondent said “There are very low profits because of high competition for example in the last five years mainstream stores are selling some ethnic vegetables.”

**Opportunities in the ECV retail market**

The ECV market still has great opportunities to offer. The immigrant population searching for their local foods has continued to grow which in turn has created a growing demand for ECV. There has also been an increased number of cross ethnic clients shopping. This is mainly due to socialization and people wanting to try out foods beyond their cultural foods. The increased number of people conscious of what they eat due to diet, health and nutritional reasons has also driven the demand for ECV, thus creating a niche market for these vegetables. The amount of ECV sold in volume has generally increased. One respondent told us that the amount he/she invested in ECV had gone up compared to what it used to be quoting that in the past they used to invest between 20-25% of the total purchases to ECV but now they have increased to 35-40% invested in ECV alone. The South Asian store owner mentioned that:

“In the last three years the produce sold has gone up. People are more concerned about what they eat” while the Afro-Caribbean store owner said “ECV sales fluctuate, our sales depend on demand. Whatever we can sell, we increase.”
Although the demand for ECV is high this is not met by the present supply as most of the retailers depend on imported ECV. Imported ECV especially those imported on a smaller scale is likely to be a more expensive venture reducing the profit margins. Yet many of the short growing ECV do not have to be imported as some can be successfully grown in Ontario and supplied locally. This is true for many leafy vegetables and the different varieties of eggplants. With locally grown vegetables, consumers are assured of fresh produce, and these vegetables also have lower transportation costs which results into lowered prices on vegetables. Locally grown vegetables also reduce the waiting time between the next consignments.

Getting fresh and quality vegetable was another area of interest. However, among the store owners interviewed, getting fresh vegetables was not a major problem. One of the respondent mentioned that he/she was able to obtain fresh vegetables as early as three days old vegetables from Ontario Food terminal imported from California. Nevertheless, once in the store, maintenance of vegetable freshness posed a problem for some store owners as storage facilities remained a challenge in some of the stores visited.

ECV are supplied from numerous importers/suppliers allowing an increased supply of the much needed ECV. The different suppliers result in difference in price but this has helped in that many more people are able to get ECV at a price that they can afford. ECV imported from China or Indian are considered better tasting and preferred by the customers than those from the US or Mexico. ECV from US or Mexico may look fresher and more attractive but are perceived not to taste like the vegetables the Chinese and Indians are used to consuming in their countries of origin. ECV from countries of origin have tended to go for a higher price than the same ECV from Mexico or the US. This has been a result of consumer preference for ECV from countries of origin as opposed to the US and Mexico ECV and coupled with the transport costs from
countries of origin. Ethnic associations among Chinese store owners has enabled them to bring in ECV at better costs as purchase and transportation are done in large numbers compared to store owners working as individuals.

**Barriers and challenges faced in the ECV retail market**

From the information obtained from the interviews it is clear there is high competition in this market as mainstream stores have joined the ECV retailing. The growing power of some mainstream stores has had a massive impact on food prices demanding ever lower prices which sometimes forces the ethnic stores to lower their prices creating minimal profits for the ethnic retailers, a situation captured in the comment made by one of the South Asian store owner.

“In the last three years the price of ECV has gone down, although the produce sold has gone up. More people are sensitive about eating healthy so they demand more vegetables and we sell more but the prices for the vegetables are low. There are very low profits because of high competition for example in the last five years mainstream stores are selling ECV.”

Competition is not only from the mainstream stores but also from similar ethnic stores carrying identical products and services a good example is that of the Chinese stores on Spadina Avenue in downtown Toronto. Competition is stiff as reflected in the Chinese store owner’s comment:

“The Chinese ethnic stores have increased so much to serve only a small population of Chinese. This has led to a small profit margin if one compares it to what our counterparts get in the US and China where the Chinese populations are higher.”

A new form of competition has also been observed where introduction of cross-ethnicity vegetables has led to competition. In this case, ethnic stores are not only competing with stores owned by similar ethnicities but across ethnicities. For example, Chinese ethnic stores carry much of the Afro-Caribbean vegetables. This creates competition between the two groups as indicated in the Afro-Caribbean store owner statement:
“There is a lot of competition in this market, you can see now all stores carry Afro-Caribbean vegetables. Chinese stores are selling Afro-Caribbean produce so we lose customers.”

Although this may create cross competition, it is important to note that the development of inter-ethnicity retail competition may be a result of the increased awareness of the demand for particular ECV.

Another barrier that was mentioned by some of the respondents was the different sources of suppliers. Although the Ontario Food Terminal was mentioned as a source of ECV, it was only one of so many sources. The Chinese store owner mentioned other suppliers for ECV with some directly imported from their homes of origin:

“100,000 people in Toronto come from Fujian town in China and the ethnic store owners from this area have come together and formed a buying association. Their suppliers are not ethnic based. These could be Italian or OFT but the store owners buy as a group so they can get a better rate.”

The difference in suppliers means difference in costs incurred and this is reflected in the final price of ECV as mentioned by the South Asian store owner:

“The okra from India is different from that from Mexico, it is longer and thinner. Okra from India is more expensive than okra from Mexico because it is imported by air to Canada. If the flight delays all the okra goes bad creating a total loss”. Some people prefer okra from India and are willing to pay a premium price”.

Apart from the difference in suppliers, lack of appropriate knowledge on the ECV has also been a challenge in this market. Knowledge and information about the ECV market has been a crucial point in the running of this market. It is important to know what the people want and what they can afford. The ECV are sourced from different countries and therefore the need to coordinate with the suppliers. The Chinese store owner explained to us that some of their produce was obtained from China through an arrangement of Canadian-Chinese store owners who imported these ECV from China as a group. One had to source the ECVs while in China
and this required knowing the Canadian ethnic market well and know what ECV sells. Lack of information on ECV marketing has been a challenge and many of those involved in the ECV market use their prior experience acquired from home to deal with ECV. This was captured in the interview with the South Asian store owner who said that:

“We do not get any training. We start from zero, right? But we train our employers. We learn from experience, the customers tell you that this is not good or this is good, or you have to do this you have to do that and we learn too.”

The quantity of vegetables supplied also came out as an issue from one of the respondents. Although the Chinese store owners organize themselves to have their ECV imported as a group, the respondent expressed frustration at the volume supplied saying that this supply is usually not enough yet they still have to share it amongst the group members. The South Asian respondent mentioned that due to weather changes in the supplying countries, sometimes they have had to wait for more than 3 weeks for vegetables.

Quality of vegetables was another challenge observed among some of the stores. This may be as a result of the distance the vegetables travel, especially those imported from ‘home’. Those buying their produce from Ontario food terminal said they did not have any problems with vegetable quality as OFT provided them with fresh high quality vegetables. The south Asian store owner was quoted as saying;

“We get our ECV from OFT so no problem with quality as we get vegetables that are three days old coming from California”.

While the vegetables may be bought from OFT fresh, maintaining the quality of the vegetables is an expensive venture for some small ethnic stores which may not be able to afford adequate storage and cooling facilities. Shelf life is very short for many ECV which deteriorate very fast if not kept frozen or under appropriate temperatures. This requires that the vegetables
be sold as quickly as possible. On many occasions vegetables were observed to be still on the shelves even when in a very poor state. Despite the fact that some stores used the reduced price strategy (sale) to sell off these vegetables fast, others still maintained the original prices even for the deteriorating vegetables. Even if finance did not come out as a major impediment, it seemed clear that with better financing better conditions may be achieved in terms of maintaining quality of the vegetables. The issue of quality was however also consistently observed even in some mainstream stores which are well provided with cooling and storage facilities.

The South Asian store owner was concerned about the challenge of the waiting time for arrival of vegetables as being a problem at times. He mentioned that this year (2011) sometimes they have had to wait for as long as three to four weeks for a particular vegetable before it arrived. This waiting created a shortage of vegetables and in turn resulted in hiked wholesale prices. Using his words the South Asian store owner says;

“Usually the gap is only two to three days for a trip to Toronto but this year it’s been three to four weeks and the reason behind this was because it was too hot in California so they wouldn’t grow these vegetables so they had to switch to Texas but the weather was still too cold in Texas.”

Appreciation of the Ontario grown vegetables as being more superior in quality, size, and freshness compared to the imported ECV was matched by negative judgment that people emphasize the importance of taste. The taste of those vegetables grown locally was said to be different and most consumers preferred the taste of ECV grown from countries of origin compared to the Canadian grown vegetables or those from Mexico or US. The difference in taste was attributed to the difference in soil types or weather. The people were ready to compromise freshness for taste, so they were often willing to pay more for the expensive vegetables imported from home rather than the cheaper, fresher, better looking Canadian, Mexico or US vegetables. The South Asian store owner mentioned that;
“There is good opportunity for ECV in Ontario but no matter where you grow these vegetables, if you try to grow the same thing as back home, the taste is going to be different. It is not gone be the same because the soil is different, the sunlight is different, and the water is different. May be you can make them look the same but the taste is different”

Finally, there was a general admission of lack of external support to ethnic stores. All the respondents said they did not have any support with their business. They worked as family to meet their needs. One of the Chinese store owner, however, mentioned that they (Chinese) work as a group to purchase their vegetables, through an association which they have formed and with this association they are able to pool funds and import ECV as a group thereby reducing on costs. However, there is no other form of organized group among these retailers to try and help address some of their challenges. When asked if they had any ethnic retailer association or other support group this is what this South Asian store owner had to say, an excerpt that summarizes the relationship that exists between retailers

“We do not have retailer associations, we only have fighting groups”

Sub-section Three: observational data on ECV retail market, structure and services.

In this section, results of critical observations made during data collection are presented. These observations include the conditions of ECV as well as the marketing strategies that stores employed. The observations are meant to act as a source of additional information to support the research findings reported during the survey and interviews with key informants.

Store display

The ethnic vegetable retail market is still evolving with many more small scale traditional retailers still in the market. These stores still maintain a display structure that is not enticing and attractive to consumers and does not facilitate the changing customer needs of self service and time saving. However, from observation and interview findings, there is a move to a more well-
organized and established food retail system and this was mainly observed in the Chinese stores. Retailers in order to improve their performance have introduced displays that facilitate quick self service, practiced by the mainstream stores but ethnic stores have followed suit with Chinese stores taking the lead in establishing excellent displays. Mainstream stores and to greater extent Chinese stores, have made an effort in the designing of the fresh produce department to make it appealing to customers. Less effort has been made by the Afro–Caribbean stores.

The image of the store, general layout and product display and a pleasant environment not only influence customer attitudes and decisions on whether to come back but also facilitate ease and safe movement. Ethnic stores especially Afro-Caribbean and South Asian stores usually occupy smaller space and with poor product display. Worst still Afro-Caribbean stores are the least organized therefore are less able to facilitate the self service system.

Packaging, labelling and storage facilities

The storage, packaging and preservation methods for ECV need to be improved on. Packing of ECV is still very limited and cannot withstand the International standard and pressure. With the ever changing consumer demands and the increased competition with better organized retailers, it is imperative to have

![Figure 8. Bok choy package with no label on pack.](image-url)
better packaging and labelling system for ECV. The lack of freezers or cold rooms means perishable ECV that require cool storage are left standing on the shelves. This shortens their shelf life and cuts into their possible profits.

Product labelling is an important component of the retail market especially in a world of food scares where product labelling emulates quality and food safety. Consumers are not only interested in produce appearance or taste but also the details of food origin, method of production through labelling as this tells much about the preservation of the environment and the social impact. Produce labelling is an important attribute in attracting consumers and this is in line with Lumpkin et al., (1985) findings. However there were less properly labelled products in ethnic stores. In Afro-Caribbean and South Asian stores labels on most ECV were not well done. The labels did not indicate price tags and place of origin for many of the products. Where names of vegetables were given it was observed that there existed big contradictions in the names given to particular vegetables with different stores calling the same vegetable different names. Labels that indicate place of origin are important in helping customers who are interested in promoting local vegetables but is also an assurance in terms of food safety to know the food origin.

Chinese stores were better at labelling their produce with most although not all the produce having labels that indicated name of produce, place of origin and price in Canadian dollars either per pound/kilo/pack but these labels were never on the individual package.
However, as we progress through the data collection, changes were observed in one of the Afro-Caribbean store sampled from. There was an improvement in the labelling and display of its product. The produce layout improved and the labelling changed to include not only the name and price of the produce but the place of origin as well. This was a positive change that was observed in the ethnic retail market.

Exacerbating this problem was the language of communication used on the labels, common in South Asian stores with more emphasis in the Chinese stores. Most of the vegetables were labelled in the local language and worst still in Chinese stores these names were sometimes written only in the Chinese alphabet which is not understandable by non-Chinese customers. This scenario may dampen the enthusiasm of cross ethnic customers that come to shop using names from a given menu.

In terms of storage and packaging, Chinese stores were the best at emulating mainstream store standards; they were better equipped with storage and cooling facilities. The Afro-Caribbean stores were the poorest is packaging and storage facilities followed by the South Asian stores.
The Extent of product differentiation in the ECV retail market.

Product differentiation was something that was observed in the ECV market. The mainstream stores were more advanced in product differentiation were products were developed into many different ready to use forms. These attract busy customers as they serve on time of preparation. Chinese stores were also noted for a high level of product differentiation. However, South Asian and Afro-Caribbean stores although had some level of product differentiation this still calls for improvement as they sold most of their produce fresh.

Quality of ECV in the retail market

With the on-set of international trade and the increased food alerts/scares, food quality has become a hot topic. As a result more attention is being paid to the issue of quality by the consumers as the quality of vegetables is usually related to their safety. Consumers judge quality in various ways such as taste, color, flavor, ripeness, odor, cleanliness, lack of blemishes, damage and pests. Good quality vegetables perceived as healthy may call for a better price. To contain the food scares more stringent legislation has been put in place and this has called for more rigorous quality control measures.

Figure 10. Over-ripe plantain in ethnic store.
Although stringent legislation is in place for food quality, a number of stores visited were noted to be lacking in their effort to maintain fresh clean vegetables. This was more evident in ethnic stores although it was not exclusively a problem of the ethnic stores. Mainstream stores were on some occasions culprits of this problem. Again Afro-Caribbean stores seemed to score lowest in the area of vegetable quality particularly in one store which always had some of its vegetables that had deteriorated beyond eating ability still left on the shelves.

**ECV stocking and vegetable assortment in retail markets**

Although the vegetable assortment in many mainstream stores has become diversified to include ECV, the numbers of ECV sold are still limited. Mainstream stores had the shortest list of numbers of ECV stocked and there was no guarantee of finding even those vegetables on the list. In one of the mainstream store it was noted over the observation time (from October onwards) that the number of ECV stocked continued decreasing. In this same store ECV were transferred from the specialized area to a smaller area together with all other vegetables.

**Other services provided by the ECV retail market**
In addition to fresh and packed foods, ethnic retail stores now carry other grocery items, health and beauty products. This was observed in most of the stores however it was noted that the services provided were still less diversified than they were in the mainstream stores that offered other services like finance (cash back and ATM) and the delicatessen section. The ‘deli’ section despite existing in some ethnic stores, is not well developed yet with the changing lifestyle and a busier and time conscious community, preparation of convenient ready to eat foods has been used to capture the younger consumers and the busier clients.

**Operational times for different retail stores**

Most ethnic stores are open for a maximum of nine hours, from about 10am – 7pm with others opening for even shorter hours while mainstream stores open longer hours, from 7am till 10pm with some running 24 hours. Time flexibility is important in a busy society, the long hours of opening offer mainstream stores an advantage to the ethnic stores for late shoppers and busy customers.

From the above interviews it is clear that ECV in Ontario have a niche market which is still growing with great opportunities. As more people turn to feeding more on vegetables, this market continues growing. However, the ECV market is faced with many challenges and obstacles which need to be taken care of if the market has to be fully exploited. The retail market has been dominated by small, traditionally oriented ethnic stores but the recent entry of larger well organized mainstream stores with modern methods and appealing product display, has been a wakeup call for the retail market. The existence of small ethnic stores partly depends on their ability to understand their clientele and to meet the changing market demands in an effective and efficient manner.
From this study there have been positive attitudes to change recorded among small ethnic stores. Although mainstream stores may appear threatening to a small ethnic store, it is clear that the mainstream stores at present cannot meet the need of the ethnic population as it was evident in the study that one of the mainstream store visited was observed to be reducing its ECV stock. From these interviews, although small ethnic stores may be feeling the pressure of competition from the new competitors, the mainstream stores, the pressure is on both sides as the mainstream stores have to improve their stock to survive the competition.
Chapter Six: Discussion

This study looked at ten most preferred ECV per ethnic group focusing attention on the availability, price trends, quality of vegetables and services provided. Comparisons were made across retail stores and within stores of same ethnicity. In this section, I share the findings of the study, which will be divided into four sections of availability, price trend over season, price comparison between ECV retail stores, store selection criteria and service provision.

Availability of ECV in retail stores:

Visits to retail stores concentrated on ten most preferred vegetables by each ethnic group (appendix 1) and these results showed ECV were sold both in ethnic stores and mainstream stores. ECV were more available in ethnic stores than in mainstream stores. Although mainstream stores carried ECV, the chances of finding these ECV at a particular visit were less in mainstream stores than it was in ethnic stores. Generally ethnic stores were able to maintain many of the most preferred ethnic vegetables in their stores all through the three seasons. Ethnic stores had numerous ECV suppliers allowing for an almost continued replenishment to the stores. They were able to obtain their produce from either the local producers, larger companies through OFT or small scale importers from their countries of origin. These small scale importers who were a major supplier for ethnic stores boosted their stock during low supply. Availability varied in the mainstream stores with fluctuating supplies as mainstream stores depended mainly on local production and large importers who get their vegetables from a limited source, mainly the US, Mexico, Honduras and the Dominican Republic. Interesting to note was the stock in Mainstream-1, which started off low, but continued to reduce through the fall season and eventual withdrawal of ECV from a specialised section to be placed among all the other vegetables. This did not seem in any way related to season and the reason was not very
clear. This was perceived as a probable sign of gradual withdrawal from a large ECV stock to a smaller stock but may also have been a procurement-related problem or an issue due to low sales. The change of ECV to a smaller area among other vegetables showed the less value attached to ECV in this store and in the long ran this may have implications for reduced sales as it is clear from Curhan (1974) that sales of produce are largely related to the space provided for the produce.

The study done in Guelph in the summer of the same year (2011) focused on in-depth ECV supply in similar mainstream stores. In this study it was observed that Mainstream-1 carried fewer ECV compared to Mainstream-2 which agrees with the findings of data collected in the GTA. This was an indication that mainstream-2 was more inclined to ECV than mainstream-1. At its best stock, Mainstream-1 carried only 50% of the Afro-Caribbean and Chinese most preferred vegetables. From this study it was found that although mainstream stores have been reported to offer a larger variety of vegetables (Bodor et al., 2007), this was only true for the conventional vegetables while mainstream stores recorded a low stock of ECV. Ethnic stores were better stocked with ECV while mainstream stores were selective in the ECV sold.

**Price trend over the seasons:**

While availability of ECV was relatively stable over the three seasons, prices for ECV were more erratic by season in ethnic stores (with the exception of Afro-Caribbean stores). Prices were lowest in the fall and highest in winter, while mainstream stores had their prices more stable over the changing seasons. The high winter prices in ethnic stores are likely to be associated to the low local production during the winter. This is consistent with British Columbia Factsheet, (2006) which showed that in the summer months local production was at
the highest increasing vegetable supply and hence prices were set at a minimal. Tomatoes clearly elaborated this phenomenon with low prices in fall while registering highest prices in winter. The low local production is enhanced by vegetable importation from outside Canada (Lister, 2007) which leaves the market heavily dependent on imported produce.

In this study three main sources of ECV supply to the retail market in the GTA were unveiled. These were local production, large scale importers and alternative small importers. Ethnic stores obtained the vegetables from all these sources but with much of their supply coming through alternative vegetable importers from their countries of origin. This conforms to Head & Ries’ (1998) finding which showed that increased immigrants had an impact on increased imports from their countries. These imports either supplemented local supply or took care of the varieties that were never supplied by the other suppliers. Although literature relates importation of vegetables to reduced vegetable prices (British Columbia Factsheet, 2006), this study found importation through alternative suppliers tended to be more expensive. These alternative suppliers associated to small ethnic stores imported in relatively smaller volumes, incurring higher costs compared to larger importers and therefore the higher retail prices observed in ethnic stores in some seasons. On the contrary, mainstream stores obtained their vegetables from either local producers or larger importers. The large corporations supply in bulk which reduces their costs allowing for generally lower prices throughout the year (relatively unaffected by season).

Whereas other ethnic store prices were unstable, Afro-Caribbean prices were more stable over the seasons as most of their produce observed was not grown locally so was not affected by cheaper locally produced vegetables. It must be noted that the stability of the Afro-Caribbean ECV did not imply cheaper vegetables or reduced costs incurred. The Afro-Caribbean
vegetable supply was maintained stable mainly through importation of vegetables. While the other ethnic stores had the advantage of being able to get more of their produce locally during the growing season which reduced on prices, the Afro-Caribbean stores still had to import much of their ECV.

Nevertheless an interesting phenomenon was observed in the mainstream stores where prices for similar vegetables imported from the same place were seen to have opposite price trends over seasons. An example was that of plantain whose price increased in winter in mainstream-1 while it decreased in mainstream-2. It was not easy to get an explanation for these kinds of trends but it would be interesting to find out why this occurs.

**Price comparison between ECV retail stores:**

A look at price differences within similar ethnic stores revealed price comparability for Chinese stores in most of the vegetables sampled with only three vegetables showing a significant price difference, a situation observed also in the South Asian stores. The Afro-Caribbean and mainstream stores had distinctly different prices. Afro-Caribbean-1 stood out as having higher prices than Afro-Caribbean-2 while mainstream-1 was more expensive compared to mainstream-2, clearly indicating that like-stores may sell similar products at different prices. This may partly be a result of difference in transaction costs between different stores.

A comparison between ethnic stores and mainstream stores for similar produce disclosed a difference in prices between stores. Prices in Chinese-1, Afro-Caribbean-2 and the two South Asian stores had prices closely similar to those of mainstream-2 yet significantly lower than those of mainstream-1. Chinese-1 on the other hand did not show a clear trend as some vegetables were cheaper in the Chinese-1 while other vegetables were more expensive compared
to mainstream-2. Mainstream-1 had the highest prices and these were significantly higher than mainstream-2 but also higher than all the ethnic stores except Afro-Caribbean-1. These results were in line with those obtained in Guelph city where ECV in mainstream-1 although were relatively stable, stood out as more expensive compared to mainstream-2 except for a few vegetables (3) which were cheaper in mainstream store- one. These results clearly indicate that retail stores may be put into categories according to pricing. In these categories are the lower cost retail stores like mainstream-2, Afro-Caribbean-2, south Asian stores and the Chinese stores while in the higher price category are the mainstream-1 and Afro-Caribbean-1.

A further analysis of the data showed that although some stores were more expensive than others, they were not expensive for all vegetables. Some selected vegetables were found to be less costly in the typically more expensive stores than in their counterparts. This was thought to be a marketing strategy known as “loss leader” used to attract in customers so as to increase store traffic while maximising profit on the less elastic demand products. According to Holton, (1957), for one to obtain utmost gains, they have to target elastic demand products for maximum returns. Studying the consumers and understanding the elastic demand products helps in maximising profits. Prices for these particular vegetables may be changed to suit the situation and hence used to attract in customers while making the necessary profits.

From these results we see that contrary to widely advanced beliefs, that mainstream stores were cheaper than ethnic or speciality stores (Leibtag et al., 2010; Kaufman, 1999; Kaufman et al, 1997), mainstream stores were not always cheaper. Prices in mainstream stores were also not uniform as mainstream-1 was found to be more expensive than mainstream-2. It was also noted that some ethnic stores had higher prices although other ethnic stores were cheaper. In general ECV price determination was observed to be a complex issue that may have
been influenced by differing strategies, transaction costs, quality and many other inter-related factors.

Results from this study show that ECV are not always cheaper in mainstream stores. Some mainstream stores were evidently more expensive than other ethnic stores. The results further enlighten us on the fact that lumping together stores such as mainstream stores or specialty stores in the study of price differences obscures some important information in the variations that exist within like-stores. In this study, considering like-stores, it was discovered that Chinese stores and South Asian stores generally had similar prices for similar vegetables. However it was noted that South Asian-1 used a marketing strategy where prices were kept more consistent over the three seasons while South Asian-2 the prices varied over season. On the contrary, Afro-Caribbean and mainstream stores had distinctly different prices. The lower pricing mainstream store seemed to have a stronger effect on price control and price influence over the other ethnic stores. A phenomena depicted by the response obtained from one store owner interviewed who said that ethnic stores had to lower their prices to match them with the ever lowering prices in mainstream stores. Ethnic stores are disadvantaged as they depend greatly on alternative suppliers for much of their produce. These alternative suppliers are more expensive as they operate in smaller numbers, yet ethnic stores have to compete with prices set by some mainstream stores. Mainstream stores are advantaged by the better organisation taking advantage of economies of scale for reduced costs and improved efficiency and so can afford lower costs without hurting the profit margins. For ethnic stores to be supported there is a need to increase local production of ECV to reduce on the operational overheads of transportation from countries of origin. There is also a need for ethnic store owners to organise themselves
into groups to further decrease on operational overheads by shortening their supply chains such as reducing middlemen acting as importers.

**Effect of quality on pricing of ECV**

Price variations were independent of quality of produce as the most expensive stores were sometimes observed to record the poorest quality of produce. Observations showed that Afro-Caribbean-1, which was the most expensive, recorded the most incidences of poor quality vegetables. These vegetables had at times deteriorated beyond eating capability yet were still on the shelves. As mentioned earlier, the poor quality ECV was noticed across most of the stores visited although others were more evident due to the extent of the problem. Quality seemed to influence the price of the more common ECV especially those grown locally. In some stores poor quality vegetables were presented at a reduced price. For the less available highly demanded ECV such as the African eggplant and the yam (yellow and white) quality of ECV did not seem to influence pricing not until the ECV had deteriorated badly. The prices remained high even when the quality was very poor.

**Consumer demographics, preferences and retail format selection:**

In this study important attributes for ECV retail store selection were studied. Factors that influenced consumer preferences and hence patronage of ethnic stores were studied. Findings of this study showed that patronage of ethnic stores was influenced by consumer demographic characteristics such as age, marital status and education level, consumer values which included packaging, selection/assortment and place of origin; and consumer adaptation for example language spoken as well as number of years spent in Canada. These factors created consumers’ opinions and shaped their feelings hence their perceptions towards a store. The attributes that influenced the total population (Chinese, South Asian and Afro-Caribbean) in selection of ethnic
store were age of consumer, language spoken, packaging and whether or not the consumers ate a significant amount of vegetables. With the information obtained on the larger population (three ethnicities), data was further analysed to understand the impact culture may have on store patronage. According to Boone et al., (1974), culture and ethnicity played a role in influencing one’s values. It was therefore necessary to study the three ethnic groups separately and results from the separate analysis showed factors influencing vegetable retail store selection differed according to ethnicity.

Among the Chinese community, the major factors influencing store patronage were number of years lived in Canada and whether the respondent ate a significant amount of vegetables. The more recent immigrants were more likely to shop in ethnic stores but this was less true for the younger generations especially those born in Canada. The younger generations were more likely to choose a different store as it was expressed by one of the interviewees, a young generation Canadian who selected a vegetable retail store based on the cleanliness and availability of all the vegetables that he wanted to buy.

Among both the Chinese and Afro-Caribbean community, significant consumption of vegetables was important in choice of store. Those who consumed a significant amount of vegetables were more likely to visit ethnic stores than those who did not frequently eat them.

In the South Asian community education, age, marital status, selection/wide assortment and place of origin played a major role in store selection. Respondent’s level of education was seen to influence store selection. Level of education is important especially when it dictates the kind of job one has, hence one’s economic status (Crask & Reynolds, 1978).
Apart from level of education, age too played a role in store patronage among the South Asian community. The younger consumers tended to patronage ethnic stores less since their interest was more towards attributes such as cleanliness and display as mentioned by the South Asian store owner. These attributes are usually, although not exceptionally associated with larger mainstream stores, findings which concur with Crask & Reynold’s finding of 1978 wherein they reported that younger consumers tended to frequent the bigger stores more often.

Marital status as a factor for store patronage showed that the married people in the South Asian community were more likely to shop in ethnic stores and not the unmarried people. This could be related to the fact that marital status often determines one’s lifestyle. The single parents or unmarried youth tend to have busier schedules so opting for a format that will provide them with all they need in a one-round shopping. The mainstream stores may also be an attraction to the busy not-married people as they offer the convenience of ready to eat foods.

Another factor that was observed in the South Asian community was selection or assortment of ECV. Selection was an important criterion in determining store patronage. Similar results were reported by Hansen & Solgaard, (2004), Thang & Tan, (2003), Baker et al., (1994) and Arnold (1997). A large variety of ECV offers selection opportunity and ensures consumers a successful shopping as the chances of getting whatever is needed is higher, enabling a one stop shopping.

Different opinions exist for place of origin where some people are interested in locally grown ECV in order to promote the local economy and a sustained environment as opposed to the long distant imported ECV with increased miles and carbon emissions. In this study, South Asians usually preferred ECV that originated from their original homes as they linked the taste
of ECV to place of origin believing that vegetables from ‘home’ tasted better than the locally grown ones and they were ready to compromise quality for taste. Although this may stand out as an important factor, it is possible to be significant among the direct immigrants while the effect may slowly fade away with the second and third generation South Asians as they acculturate to the local taste.

Selection of retail store among the Afro-Caribbean community was also influenced by household size and the value one attached to packaging. Consumers with larger household sizes tended to select ethnic stores for their shopping, thus contradicting with Fox et al., (2004)’s findings which showed that large households tended to patronise larger stores. However the effect of large households patronising ethnic stores may be a result of difference in pricing among ECV retail stores with some ethnic stores found to offer competitive lower prices. This would be in agreement with Fox et al., 2004 finding that large store patronage by large households was a result of the lower prices offered.

Afro-Caribbean who valued packaging were less likely to shop at ethnic stores. This may have been probably related to the fact that packaging in most of the Afro-Caribbean stores was not well developed which meant that those consumers who perceived packaging as an important factor were less likely to choose ethnic stores for their shopping.
Chapter Seven: Summary and conclusion

Summary

With the increased importance of ECV, availability of these vegetables has remained a challenge. Even though importation of foods has increased food diversification, it remains a challenge to meet the needs of the changing demographics of the Canadian population. Importers can only supply ECV with a good profit margin, therefore dictating the types of ECV imported into Canada hence creating an insufficient ECV market.

ECV availability was highest in ethnic stores and remained very low in mainstream stores implying that ethnic stores were a better alternative for a one stop shopping for the most preferred ECV. Ethnic stores were also able to provide a wider assortment of ECVs to meet the various needs of a given community. Ethnic stores supply more than one variety of some ECV say three different varieties of eggplant (Chinese eggplant, white eggplant and purple eggplant) or okra (Indian okra, locally grown okra). While Mainstream stores had a limited stock and these did not seem to meet the full needs of the consumers as it was observed that mainstream stores did not carry all of the ten most preferred ECV. Even with the small stock of ECV in mainstream stores, the availability was not guaranteed with some occasions noted when ECV were out of stock. Stock in one of the mainstream store was observed to gradually reduce over the study period. The wider assortment and continued supply of ECV in Ethnic stores was attributed to the diversified suppliers of ECV in the ethnic stores. Like Mainstream stores, ethnic stores obtained their ECV from OFT and local production however, in addition to these two sources, small ethnic stores imported more ECVs from their countries of origin to supplement what was available. The diversified suppliers among ethnic stores enabled small ethnic stores to be an important source of constant supply of a wider assortment of ECVs. Ethnic stores were
better stocked in terms of quantity and availability of ECV compared to mainstream stores. Increased vegetable assortment results in increased choice and so room for preference and selection which promotes more consumption of vegetables.

There was no clear cut uniformity in price trends with regards to store type, however, there was a price difference within mainstream stores and this may be attributed to the difference in category of the mainstream stores studied. This clearly shows that some mainstream stores may be more expensive than other mainstream stores. The expensive mainstream stores may practice the ‘loss leader’ strategy where some ECV are sold at a comparatively cheaper price in order to attract customers (Narasimhan, 1988). This strategy was also referred to as the Hi-Lo strategy as mentioned by (Varian, 1980). Vegetables with low price elasticity were a target for this strategy in order to maximum profits. According to Holton (1957) for one to obtain maximum profits, there is need to set prices that will target highest profit margins on the less price elastic vegetables. One Afro-Caribbean store was also more expensive than the other. The Afro-Caribbean store that was found to be most expensive was one of the largest of the Afro-Caribbean stores and best stocked. This store may have taken advantage of its large stock to maintain its customers even with the high prices. This finding conforms to Ancaran & Shankar (2004) finding that price dispersion implies that the highly priced store is able to differentiate itself from the others on non-price dimensions, in this case the better stocking which allows for a better availability of ECV.

Generally prices in ethnic stores were reduced to match those of the cheaper Mainstream stores although we saw one ethnic store that had higher prices. It was clear that mainstream stores especially the cheaper ones played a major role in the control of ECV prices. Interviews with store owners revealed that due to the high competition as a result of the entry of mainstream
stores into the ECV retailing, ethnic stores have had to reduce their prices to match those of mainstream stores and this has greatly cut on the profits by ethnic stores. From this study contrary to the widely advanced belief that mainstream stores had better (lower) prices for foods, some mainstream stores were found to be more expensive than ethnic stores this is in line with Volpe and Lavoie’s (2008) and Leibtag (2006) finding that showed that sometimes prices of some items were cheaper in smaller traditional stores than the larger chain stores. And even more interesting was that other ethnic stores stood out as more expensive than either the mainstream or ethnic stores. While some between store price differences may be attributed to cost difference, this explanation does not suffice for like stores that seemed to have similar costs yet priced their ECV differently.

However with differences in suppliers hence in overhead costs, ethnic stores sometimes had to maintain some ECV at higher prices. Ethnic store prices were driven by the price trends of the cheaper mainstream stores, although some ECV were priced more expensively due to their cost of importation. This is likely to disadvantage ethnic stores unless there is good reason for consumers to pay a premium price for those ECV for example difference in taste, quality or uniqueness of variety. In conclusion we see that entry of mainstream stores into the retail food market has led to the lowering of food prices forcing some ethnic stores to lower their prices and sell at minimal profits.

Findings from the study also showed that ECV price trends were affected by season with ECV that can be grown locally having more erratic prices which fluctuated with season. Highest prices were observed in winter when production was minimal and lowest immediately after harvests. Prices for ECV that are not grown locally were generally not responsive to seasonal changes however their prices were constantly high a feature true for all retail stores, while ECV
prices were more stable in Mainstream stores compared to small ethnic stores. Mainstream stores were less affected by seasonal variations in prices than ethnic stores because of the inclination of mainstream stores on large scale imported ECV from the US, Mexico or the Dominican Republic where Canadian local weather does not affect supply. Yet it was noted that ethnic stores depend to a large extent on local supply for some of their ECV although get some supplies from OFT (large importers), and alternative importation. This was however not a major factor in the Afro-Caribbean stores as the Afro-Caribbean stores like the Mainstream stores depended much more on imported ECV and less on local production than was the case for ethnic stores. Prices of ECV were generally high especially those that are imported. Locally grown ECV were much cheaper than imported ECV that was true for okra and tomatoes.

The ECV affected by availability and price fluctuation with season were those that would be grown locally. Most of the ECV that were grown locally were either Chinese or South Asian with a small number of Afro-Caribbean ECVs. ECV that are not grown locally although had stable prices, these prices were considered on the higher side and would be made lower if the vegetables were grown locally.

Store owners were noted to apply different pricing/ marketing strategies to their ECV with most practicing the loss leader/ Hi- Lo strategy where some selected ECVs were sold at low prices to attract customers while using other more expensive ECVs to realise their profit. South Asian-1 also used the strategy of price consistence to maintain customers.

Since ethnic stores were a major supplier of ECVs, season becomes an important factor in ECV supply in the GTA especially for those ECVs that can be grown locally. With increased local production ECV prices may be reduced making ECVs more accessible and affordable by
the community. An increased production of Afro-Caribbean ECVs would also help further reduce prices on these vegetables.

Small ethnic stores had a comparative advantage over larger mainstream stores in view of the fact that ethnic store owners had relatively better information on the ECV market such as types and varieties most demanded and the structure of the ECV market in the countries of origin. This enabled ethnic store owners to use alternative importation of ECV from countries of origin as one of the major sources of ECV in their stores. This was done on individual arrangement and on much smaller scale compared to the amount imported by the large corporations. Because of the small scale arrangement ECVs imported through this method tended to be more expensive. For ethnic stores to be more competitive in the ECV retail market, there is need for ethnic stores to re-organise themselves into association in-order to work as a group and take advantage of economies of scale and the efficiency that comes with better organisation.

The quality of ECV on the market was generally poor across all the stores with a stronger emphasis to Afro-Caribbean stores. The poor quality of ECV may be linked to the long distance of transportation but in ethnic stores may also be a result of poor cooling and storage facilities. Although mainstream stores were well equipped with cooling and storage facilities compared to ethnic stores, the general quality of ECV observed needed improvement. The cooling and storage facilities problem was more profound in Afro-Caribbean stores which were the same stores that had the highest occurrences of poor quality. Poor quality vegetables were mainly observed on imported vegetables a condition attributed to the time the vegetables spent in transportation and warehouses awaiting distribution and then on shelves in stores. Locally produced vegetables were the most fresh and had the best quality. These are picked mature and
transported to the retail level within a few days as compared to the imported vegetables that travel thousands of miles. Quality of ECV was further compromised by the poor packaging in most of the retail stores. Packaging is used as a hygienic way of storing products therefore signifies quality (Bonner & Nelson, 1985).

Another attribute that was significant in the observations was store display and store image. Ethnic stores especially the Afro-Caribbean stores had poor product display and store layout a factor that may influence negatively on the sales. Store image was found to play a role in consumer preferences and selection (Clarkson et al., 1996). Store labelling, display and attractiveness may lure an increased number of consumers into the stores. Store owners in some ethnic stores may need to re-evaluate their store layout and display to facilitate ease of movement, improved accessibility and easiness for self service but also for the physical attractiveness to consumers. Chinese ethnic stores have taken on the ECV retail market more aggressively and seem to be better competitors with the mainstream stores. A lot of effort is still needed for the Afro-Caribbean stores.

Finally ethnic store selection was seen to be influenced by a number of attributes including amount of vegetables consumed, ones perception on importance of language, packaging, and selection/assortment, place of origin of the vegetables and demographic characteristics. However, these attributes were specific for a given ethnicity with different ethnic groups influenced by different attributes. The Chinese were influenced by the years one had lived in Canada and significant consumption of vegetables. South Asians were influenced by importance of place of origin, availability of a wide selection and demographic characteristics such as age, marital status and level of education, while Afro-Caribbeans were influenced by packaging, size of household and consumption of significant vegetables.
Conclusion

The population of Canada is growing at a fast rate recording one of the highest growth rates among the G8 countries with a growth rate of 5.4% in 2001 – 2006 (Statistics Canada, 2006a) and a population stand at 33.74 million (World Bank, 2011), a growth highly influenced by immigrant population. The increasing population is an important factor in the Canadian economy as an increase in population is directly related to increases in consumption pattern but more important still is the fact that a major growth in population is a result of the immigrants relying on imported vegetables for their food.

Although the agricultural sector in Canada is growing, as a member of NAFTA and WTO, Canada is bound by the trade agreements of these organisations, which has transformed agricultural production at the national and provincial level favouring large scale grain production hence the disappearance of many small scale vegetable farmers. While there is local vegetable production in the GTA especially during the warmer seasons, Canada imports 40% of its vegetables from Mexico and USA (Riches et al., 2004) and these are supplemented by different sources of vegetable importation that have mushroomed with the increased demand for ECV among the immigrant population. However the supply has not been able to meet the demand for ECV, yet with the projected population growth of visible minorities from 13% in 2001 to 21% by 2017 (Serecom management consult, 2005) the ECV demand is expected to grow further (Adekonle et al., 2010).

The retail market structure has since experienced tremendous changes with increased food importation, giant corporations entering the retail food system, increased numbers of ethnic stores and increased competition exerted on smaller retail stores. The end result has been a strain on ethnic stores which depend more on costly suppliers for their food supply and in effect
the quality, availability and pricing of ECV being compromised. With a compromised diet the country’s health system is left at stake as it is bound to see an accelerated growth of chronic illnesses which are related to diet. The world today and Canada in particular is faced with numerous food related health disorders and this is weighing heavily on the Medicare system. Vegetables are the best option in reducing the burden of chronic diseases on the government as they contain low cholesterol, low unhealthy fat and less unwanted salts. For policy makers to implement increased healthy eating through vegetable intake then retail stores are important entry points. In the current volatile retail market system with food prices sky rocketing, the fate of small ethnic stores lays on the balance in the competition. Many retailers have sort to merge as a solution to overcome the stiff competition. However the small ethnic stores have maintained a one-person operation or single proprietorship a structure that leaves them vulnerable to inefficiency and deprives them the advantages of economies of scale enjoyed by the many mainstream stores. As a result the returns from their transactions may not be comparable to the competitor mainstream retailers.

Ethnic retail stores also need to be facilitated so they can have good quality and constant supply of the much needed ECV. Since ethnic stores are better positioned to serve the community with ECV, there is need for improvement in storage and quality of the ECV. According to Cheadle et al., (1991), the health status of individuals increase with every increased healthy product in the store and therefore an improvement in the quality and quantity of ECV in ethnic stores will change the face of the Canadian health system.
Contribution to body of knowledge

With these remarks I conclude by saying that the findings of this study will help contribute to the existing body of knowledge through acknowledging that ethnic stores are an integral component of the Canadian retail system, valuable for the outstanding ability to provide for the different nutritional needs of the copious ethnic communities. Ethnic retail stores remain the preeminent source for ECV as the study showed that ECV availability was highest in ethnic stores and lowest in mainstream stores.

Although ethnic stores are a fundamental component of the food retail system in Canada, these stores have been faced with the ever raising food prices, a crisis that threatens the whole world and has become a global issue. Some of the factors that have influenced ECV pricing have been found to be supply chain and hence operational costs incurred, season and type of retail store. Although global food prices are on the raise, the final pricing for ECV have been seen to be yet affected by the pricing of the cheaper mainstream stores which have taken advantage of the reduced overhead costs and improved efficiencies through use of cooperation and collective effort to benefit from economies of scale.

The increased dependency on economies of scale has seen mainstream stores improve on the supply to meet the ever changing demands of the consumers. Consumers are demanding for better quality produce in a timely and consistent manner. Ethnic stores however, have lagged behind in terms of the quality of their produce. In this study the quality of ECV was a critical issue as many retail stores had to depend a lot on alternative importers whose produce took some days to arrive and hence the vegetables deteriorated on transit but also on the shelves due to poor
storage facilities. However, locally grown ECV were of better quality than imported ECV. This calls for the need to promote locally grown ECV to improve the quality of ECV available.

Apart from the quality of ECV in ethnic stores, ethnic store owners have the obligation to improve store display and image if they have to withstand the current competition in the retail food system. Store display and store image play an important role in luring in potential customers and when not well managed may negatively affect the customers’ propensity to shop in that store. Yet this study found that ethnic stores especially Afro-Caribbean stores exhibited a low store image.

All these factors ultimately led to whether or not consumers patronised ethnic stores. For ethnic store owners to capture a considerable number of consumers there is need to understand the consumers and adjust accordingly. In this study it was found that ethnic store patronage was influenced by ethnicity and depended on factors such as demographic characteristics, amount of vegetables consumed, number of years spent in Canada, one’s values such as perceived importance of packaging and place of origin of vegetables.

**Recommendations**

From the above findings it would be necessary for both store owners and policy makers to work together to improve ECV quality and quantity to the population that crave and desire to have them so in my work I came up with the following recommendations.

First it is necessary to note that locally grown ECV ease on the cost of transportation and may result in cheaper produce, increase quantity and quality of supply as more fresh vegetables are available. Locally grown ECV are also important in environmental sustainability as they involve shorter distance of travel from producer to end user. The shorter distances mean fewer
food miles hence less carbon emission. Locally grown vegetables therefore lower greenhouse gases thereby helping to mitigate climatic change. However, for ECV to continue flourishing there is need for local ECV production to be recognised and permissive regulations enforced. Policies should be in place that focus on creating favourable conditions for local food production through community gardens and urban farms, promote purchase from local farmers at farmers’ markets and produce stands. Policies should also encourage ECV local purchases by government food programs in order to boost the ECV market and to meet the needs of the people they are serving. For example food banks and other food programs other-than supplying exclusively Canadian vegetables to a user community largely made up of immigrants (low income earners), should re-think to include ECV in the diet as these may be the vegetables of choice to that community.

There should be increased sensitisation and education programs aimed at increased awareness of the importance and value of eating fresh ECV and to counteract the aggressive advertisements by food processors since advertisement of processed foods have been known to increase consumption of processed foods (Jason et al., 2004). Policy makers should endeavour to educate the community on the need or importance of eating fresh vegetable as opposed to selecting vegetables from home of origin based on preference for taste. Many consumers prefer the less fresh vegetables originating from their home countries, however there is a need to help consumers understand and appreciate the health and environmental benefit of eating the same ECV that have been locally grown.

Government should invest more in the production research and marketing strategies of ECV (Filson et al., 2011) in order to increase the quality and quantity of ECV produced locally and also increase awareness of the possible niche market that exists in growing these vegetables.
However we should appreciate the fact that some ECV cannot be locally produced cheaply so ECV importation, although considered a pollutant to our environment, may not completely be done away with, however it should be used more as a supplement rather than a substitute source of supply for ECV especially those that can be locally produced.

Effort for the consolidation of ethnic store owners should be undertaken as ethnic stores play a significant role to the community. Ethnic stores need to be recognised and supported by the relevant associations or if such associations do not exists then ethnic store owner associations should be encouraged. Policies should be in place that encourages ethnic store owners’ promotion of collective action to reduce transaction costs. Consolidation of ethnic stores allows achievement of efficiency and cost saving through streamlining their transportation/distribution, packaging, storage and increased consistency in supply to be able to meet the demands of the consumers.

Although locally produced vegetables are important in enhancing a healthy population, a sustainable environment and economy, it is imperative to note that about 80% of agricultural related environmental pollution is a result of the farm and production phases which involve pesticides, farm wastes and chemical fertilizers infiltrating water sources and retained as residues in soils (Gain, 2010). Locally grown vegetables have also seen an increased use of immigrant workers as a source of cheap labour. This has created controversy as the conditions of some immigrant workers (Otero & Preibisch, 2009) are not in line with the healthy population targeted by those advocating for local production. Therefore as we advocate producing local, it is essential to re-evaluate our farming practices to ensure that we are using methods that are actually environmentally friendly and sustainable. For that reason policies need to critically
evaluate the information gap that exists in the ECV agronomic practices, conditions of farming and recommended pesticides.

**Limitations of the study**

Data collection on pricing was done every two weeks in the winter, summer and fall of 2011. This was because price changes are gradual and do not happen on a weekly or daily basis; therefore there was no need for a daily or weekly data collection. This however meant that data points were limited to only a maximum of only 5 in each season.

Limitations in finances and the duration of my course also dictated the period and frequency of data collection. Data collection was done for one year with five data points per season except for the winter where data was collected from six data points.

Although these results reflect the situation in the GTA, generalisability of the price data should be made with caution due to the sample size used. However this shortcoming should not totally negate usability of the results given the fact that price data was collected over an extended period of time (one year) and that retail food prices do not change rampantly.

It must also be noted that although this study considered Chinese, South Asians and Afro-Caribbeans as the major groups each with similar eating preferences, differences may exist within these groups in the foods eaten. However this does not falsify the categories of food preferences as shown in the appendix as many of these people share common food preferences within the group.
Further research:

1. Little work has been done on the effect of supply chains on ECV prices, especially the individual importation chain which are not well understood. This makes it difficult to conclusively determine the direction supply chains may play on pricing. To fully understand the possible ECV niche market it is important to further understand how supply chains, influence pricing taking into consideration the costs, barriers and opportunities in comparison with the costs of growing these vegetables locally in the cases where they can be grown locally.

2. It is also important to note that price comparison across stores is a complex exercise as many factors appear to be intrinsically linked in the control of the final price. These may include factors such as quality, packaging, storage, processing and the overall costs. It would be necessary to study other factors that influence ECV pricing. It is puzzling when you look at two retail stores with seemingly similar operational costs, selling similar ECVs from the same supplier yet with a different price trend. In one store the price trend of a vegetable may be seen to increase with the season while the other decreases with the season. An example was that of plantain whose price increased in winter in Mainstream-1 while it decreased in Mainstream-2. It was not easy to get an explanation for these kinds of trends but it would be interesting and useful to find out.
References


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Appendix

Appendix 1: List of ten most preferred ECV among the three ethnic groups. (*Courtesy: Adekunle et al., 2010*).

A. Highly preferred ten vegetables by Chinese Canadians

1. Bok Choy / Pak Choy / Baby Bok choy (*Brassica rapa* sub-specie: *chinensis*): Chinese Cabbage – Bok choy (Cantonese), Xiao bai cai / Bai cai (Mandarin), Taiwan Bok Choy
3. Eggplant (*Solanum melongena*) – Aubergine, Brinjal – Various varieties based on colour and shape identified.
7. Green Beans (*Phaseolus vulgaris*) – Phalli (India), Chinese green beans
8. Celery (*Apium graveolens* var. *dulce / rapaceum*) – Chinese variety
9. Spinach (*Spinacia oleracea*) – Palongshak (Bengali)
10. Carrots (*Daucus carota*) – Gajja (India)

B. Highly preferred ten vegetables by Afro-Caribbean Canadians

1. Okro (*Abelmoschus esculentus*) – Lady finger, Bhindi (India), Ila (SW Nigeria), Huang Sukui (China), Gumbo (Swahili)
3. Smooth Amaranth (*Amaranthus sp.* – Efo tete (SW Nigeria), Bitekuteku (DRC), Callalou / Kallaloo (Jamaica), Yin choi, Chinese spinach (China), Thotakura, Cheera (India), Mchicha (East Africa), African spinach, Indian spinach, Bonongwe (Malawi), Thepe (Botswana), Grins / Hondi (Sierra Leone), Alayyafu / Alefu (Hausa – West Africa), Madze / Efan / Muotsu, Swie (Ghana), Lalshak (Bengali)
5. Yams (* Dioscorea batatas*) – Yellow Yam, White Yam
6. Pumpkin / Squash (*Cucurbita sp.*) – Kaddu (South Asia), Chinese Squash
7. Plantain (*Musa paradisiaca*)
8. Cocoyam leaves / corm (*Colocasia esculenta / Xanthosoma sagittifolium*) – Taro, Dalo (Fiji), seppankizhangu (Tamil), Gabi (The Philippines), Pindalu, Karkalo (Nepal), Nduma (Kikuyu – Kenya), Ala (Maldives), AmaDumbe/Madumbi (Zulu – South Africa), Dasheen, Eddoes (West Indies / Caribbean), Coco (Nigeria), Kontomire (Ghana), Kachu / Kochu (Bengali), Ghuiyan (Hindi), Arvi (Hindi), Macabo (Cameroon), Yu tou / Yu nai (China), Wuh tau (Hong Kong), Arrow roots.
9. Yardlong Bean (*Vigna unguiculata subsp. sesquipedalis*) : Cowpea – Long-podded cowpea, Asparagus bean, Snake bean, Chinese long bean, Dau gok (Cantonese), Jiang dou (Mandarin), Bora (West Indies), Borboti (Bengali). And Black-eyed pea {beans} (*Vigna unguiculata subsp. unguiculata*): Cowpea – Ewa (Nigeria), Kunde (Swahili), Thattapayu (Tamil), Me-karak (Sri Lanka).
10. Cassava (*Manihot esculenta*) – Yucca, Sombe, leaves (Central Africa), Ege, Akpu (Nigeria), Mhogo (Swahili), Mushu (China).

C. Highly preferred ten vegetables by South-Asian Canadians
1. Okro (*Abelmoschus esculentus*) – Lady finger, Bhindi (India), Ila (SW Nigeria), Huang Sukui (China), Gumbo (Swahili)
2. Eggplant (*Solanum melongena*) – Aubergine, Brinjal – Various varieties based on colour and shape identified.
3. Bitter Melon / Bitter Gourd (*Momordica charantia*) - Karela (India), Kugua (China), Carilla, Balsamino, Saraseed (Caribbean)
4. Spinach (*Spinacia oleracea*) – Palongshak (Bengali)
6. Cauliflower (*Brassica oleracea* : Bortrytis Group) – Gobi (India)
7. Potato (*Solanum tuberosum*)
8. Cabbage (*Brassica oleracea* : Capitata Group)
9. Cilantro - Coriander (*Coriandrum sativum*) – Yun tsai (China), Chinese parsley
10. Onions (*Allium cepa*) – Baby/Small