FOOD AVAILABILITY, FOOD STORE MANAGEMENT, AND FOOD PRICING IN A NORTHERN COMMUNITY FIRST NATION COMMUNITY

Teresa Socha, PhD.
Faculty of Education, Lakehead University, Canada.
E-mail: teresa.socha@lakeheadu.ca

Lori Chambers, PhD.
Department of Women Studies, Lakehead University, Canada.
E-mail: lori.chambers@lakeheadu.ca

Dr. Mehdi Zahaf (Corresponding Author)
Faculty of Business Administration, Lakehead University
955 Oliver Road, Thunder Bay
ON, P7B 5E1, Canada
E-mail: mehdi.zahaf@lakeheadu.ca, Phone: 807-343-8388

Rawnda Abraham, MEd.
Lakehead University, 955 Oliver Road, Thunder Bay
Ontario, P7B 3J3, Canada
Faculty of Education, E-mail: rabraham@lakeheadu.ca

Teri Fiddler
Community member
E-mail: teri_fiddler@yahoo.com

Abstract

Food security exists when people have consistent physical and economic access to sufficient, safe and nutritious foods to meet their dietary needs and food preferences for an active and healthy life. Remote northern First Nations communities suffer disproportionate rates of food insecurity and confront a myriad of social problems that stem from colonization. Access to healthy, inexpensive and culturally appropriate foods will not solve all of these problems. Such access may not be possible under current conditions. Northern Stores often have a monopoly for the greatest part of the year in remote communities. Hence, they impose their own prices and their own food selection based on a pure capitalist model. This paper examines the determinants of price as well as the distribution challenges and structure in First Nation communities.

Keywords: Food Security; Aboriginal health; Food Pricing; Price Determinants; First Nations

1. Introduction

Food security exists when people have physical and economic access to sufficient, safe and nutritious foods to meet their dietary needs and food preferences for an active and healthy life (World Food Summit, 1996). Food security is a prerequisite to broader health (World Health Organization, 1986). Remote First Nations communities confront a myriad of social and health problems, including food insecurity, which stem from colonization. Access to healthy, inexpensive and culturally appropriate foods will not solve all of these problems; however, healthy food is a prerequisite for wider social change. Moreover, food sovereignty - culturally appropriate, locally determined food systems and food distribution - enhance community autonomy and self-determination and build community capacity.

This project focuses on knowledge in a remote Northwestern Ontario community and transforms community-based, often anecdotal, evidence into quantifiable data: this approach means that in future, projects can better respond to the needs of Aboriginal communities because of the local knowledge base. People in Aboriginal communities know that food is expensive and is often not available. They also know the pain of choosing between food and other necessities. The approach of documenting daily food acquisition struggles has been successfully used in urban centers: evidence-based research regarding food prices has been used to pressure governments to expand expenditure on social security. Because of unique jurisdictional challenges on reserves, however, such data has not been gathered in remote and rural northern Aboriginal communities.
In order to fill this knowledge gap and to document the challenges to food security faced in Northern remote Indigenous communities, a comprehensive approach was adopted. We interviewed the local Northern Store manager who described for us the challenges inherent in a profit-based system in a remote community with a small market.

And we documented prices in the Northern store for comparison with prices in Thunder Bay, Ontario, providing ample evidence that these prices place nutritious food out of the reach of many community members. The paper is structured as follows. We start with an introduction to the current situation in remote First Nation communities in terms of food and distribution systems, and then we briefly present our design. Lastly, results are presented and discussed.

2. Food and Distribution Systems in Remote First Nation Communities

2.1. Distribution Dilemma: Profit versus Human Rights

Members of some remote Northern communities obtain the majority of their food from the local Northern Store (The North West Company, 25 stores in Ontario) which has a monopoly on market foods for 9 to 10 months of the year (all times when the winter road is not available). From the early 1940s the Northern Store has provided "immediate access to supplies and food" when hunting and angling were insufficient for community/family needs and/or in lieu of travelling to more distant supply posts (Robidoux, Haman, & Sethna, 2009, p.17). The Northern Store, therefore, is a long-standing institution in the community. It is also, however, a symbol of the colonialist past (and present).

All people have the right to adequate and nutritious food, but human rights are not the highest priority in a capitalist society. The right to an adequate "standard of living for health and well-being…including food" is acknowledged in international human rights agreements (article 25, *Universal Declaration of Human Rights*, 1948) and is essential to the Canadian guarantee of "life, liberty and security of the person" (s.7, *Canadian Charter of Rights and Freedoms*, 1982). The Supreme Court of Canada has been hesitant to endorse economic rights within the framework of *Charter* interpretation or to challenge the central assumptions of capitalism. But the profit incentive inherent in capitalism may, at a fundamental level, be incompatible with basic human rights. If the store is to remain in the community, make a profit as a private retail enterprise expects to do, and simultaneously meet the nutritional needs of community members, subsidies for targeted foods are necessary. Ironically, however, the very challenges faced by the store manager illustrate the contradictions inherent in providing food, a basic human necessity, within a profit-driven paradigm. A cooperative store, such as those established in Nunavut (Findlay, 2006) and Nunavik (Dana, 2010), might be more consistent with community values of sharing and reciprocity than the Northern Store. The problems facing the Northern Store, which preclude availability of market foods at an affordable price, make it clear that there is "no progress for the people in economic relations dominated by outside interests" (Russell, 2004, p. 141).

2.2. Alternative Foods: Traditional Food

It is important to place great emphasis on restoration of access to and knowledge about traditional foods as a component of the solution to the twin crises of food and health in the north. But store managers are not allowed to process or sell any traditional foods. Support for hunting and angling could offset ill health and "raise the proportion of country foods in the diet" (Dana, 2010, p.67). In Nunavik, Hunter Support Programs which provide funding for community boats and freezers, and cooperatives which allow for distribution of off-the-land traditional foods, both improve access to healthy food and reflect "collective decision making" models that are central to community values (Dana, 2010, p.43). Such developments would reflect the emphasis on traditional foods expressed by communities, but are outside the control of the local food store manager.

2.3. Northern Food Basket: Rationale and Drawbacks

Researchers have recently argued that information regarding food pricing is an essential aspect of food security research and policy making (Power, 2005). In December, 1997, the Public Health Branch of the Ontario Ministry of Health released the *Mandatory Health Programs and Services Guidelines* that mandated that

> the board of health shall work with community agencies and groups to promote access to sufficient, safe, nutritious and personally acceptable food for people of all ages. This shall include as a minimum: monitor, annually, the cost of a nutritious food basket according to the Ministry of Health Monitoring the Cost of a Nutritious Food Basket Protocol (June 1, 1998). Information about the cost of a nutritious food basket is to be used on an ongoing basis to promote and support policy development to increase access to healthy foods (Ontario Ministry of Health, 1997, p.8).

The Guidelines are published by the Minister of Health, pursuant to Section 7 of the *Health Protection and Promotion Act*, R.S.O. 1990, c. H.7, but because of the jurisdictional conflict with regard to reserves, this requirement has not been fulfilled on Indigenous territory which is under federal control. In contrast to a growing body of evidence with regard to food prices in urban centers, limited evidence has been amassed regarding food prices in the north.

It is in this context that the Northern Food Basket (NFB) was developed by Indian and Northern Affairs Canada (INAC, now called Aboriginal Affairs and Northern Development) in 1990 to monitor the cost of a "thrifty northern food basket" in isolated northern communities and in southern supply centres. It is used to monitor the cost of a nutritious diet for a lower-income reference family of four. It was revised in 2007 (RNFB) and remains the primary tool for government data collection with regard to food costs in remote northern communities. The food basket pricing mechanism could itself be critiqued as a colonialist tool; the healthy foods listed on the basket are not determined by communities themselves, or by individuals who will eat such food, but by the government. Further, the RNFB excludes prepared convenience foods and foods of little nutritional value. Governments assert that the "nutritious food baskets are not intended to recommend or promote the consumption of any specific food included in the baskets" (Indian and Northern Affairs Canada, 2007, p.2), but by collecting data on a limited number of foods, such choices are implicit. Moreover, the limited selection ensures that the Revised Northern Food Basket is not representative of food consumption or expenditure in northern communities. It surveys only 67 items, providing, in our opinion, very limited data about food availability, quality and cost.

2.4. Revised Northern Food Basket Survey

Results from the Revised Northern Food Basket price surveys conducted in Ontario are reported on INAC's website (http://www.ainc-inac.gc.ca/nth/fon/fc/rgrs-eng.asp#ont). Prices were collected in September 2009. Four northern Ontario communities were surveyed: Paewanuck, Big Trout Lake, Fort Severn, and Muskrat Dam. Thunder Bay, Ontario data were based on prices in one supermarket. Perishables accounted for about two thirds (between 62 percent and 72 percent) of the total cost of the basket. The mean price ratios (*SD*) in the four northern Ontario Aboriginal communities for perishable and non-perishable food items were 1.75 (0.14) and 1.65 (0.11), respectively. The resulting difference (0.10, which is equivalent to a price difference of $10.00 for a $100 purchase) in price ratio between perishable and non-perishable food items is large (Cohen's $d = 0.78$). Cohen's *d* is a measure of the difference between the two price ratios expressed in terms of a common standard deviation (a measure of how spread out the data are around the mean or average). Thus for the RNFB data, a *d* of .78 indicates that approximately four-fifths of a standard deviation separates the perishable and non-perishable price ratios. Significant other differences in the data are also evident.

3. Methodological Approach

3.1. Ethics and Values: a Self-Determination Approach

In designing this community project and partnership we explicitly rejected "destructive practices of colonial research by fragmented social sciences" (Findlay, 2006, p. 47) and adopted a holistic and decolonizing perspective that gave control over data and interactions to participants, and which defined questions from the perspective of community needs (Smith, 1999; Weber-Pillwax, 2001). We adopted a holistic approach to food, the environment and health expressed by community members and defined partnership as working together in "*kindness, caring, and understanding*"[1] (Community Elder).

Aboriginal people have been theoretically and literally 'researched to death'. Rather than continue with the colonial tradition of researchers who reap the sole benefits after going into a community to extract information and then abruptly leaving, we established a decolonizing relationship with community members based on reciprocity. This is what Schnarch (2004) refers to as self-determination applied to research. This integrative model is based in ownership, control, access, and possession of the generated information/data or (OCAP). We developed a modified and interpretative version of Schnarch's model. Hence, in light of our commitment to honouring the voices and choices of remote Indigenous people, we abandoned the Revised Northern Food Basket as a tool for measuring food costs. Not only were we concerned that the food basket is driven, fundamentally, by the choices of those outside the north, but it also has significant methodological limitations.

3.2. Design Steps

To achieve the objectives of this study, we adopted a dynamic and integrative design. As described above we had to make sure that our processes were ethical and accepted by the community. Further, the study was designed to be driven by the community and is based on a three-prong comprehensive assessment of food accessibility (see Figure 1 in Appendix):

1. Talking circle with community members - It complements the depth interview with the store manager. All findings from the talking circle are reported in a separate article.
2. Depth interview with the store manager to assess and understand the challenges and issues when managing the store.
3. Empirical evidence - in-store data collection on food variability and pricing.

[1] Italicized quotes represent voices of participants in the study.

3.3 Community Permission

Over a period of two years, a partnership was developed with Nishnawbe Aski Nation (NAN), an Aboriginal political organization in Ontario representing 49 First Nation communities within the James Bay Treaty 9 territory and the Ontario portions of Treaty 5 (http://www.nan.on.ca/), which resulted in the creation of the *NAN/Matawa/Lakehead University Miichim*[2] *Reference Group* which guided the research design and ethics protocol. Permission to enter the northern community was obtained from the community's chief and council, and from NAN.

Further, before embarking on food price collection itself, we obtained permission from the community Northern Store manager to enter the store to collect prices of foods and household items, as well as get her perspective on the challenges she faces. We subsequently surveyed the condition and variability of products. Prices for all perishable (N = 283) and a selection of non-perishable (N = 260) food and household items in the Northern Store in the northern Ontario community were collected in September 2009. Approximately 5% (with a minimum of two items) of non-perishable items were selected within 37 defined categories. Items were selected to ensure a broad sampling of non-perishables. Subsequently, prices were collected in two Thunder Bay, Ontario grocery stores (one chain and one independent supermarket) in November 2009. When items of the same size, weight, or brand were not available, the closest substitute was priced and price corrections made to correspond to the size and weight of the item available in the northern community. Store items were included in the data only when a comparable item and price was obtained at both Thunder Bay, Ontario grocery stores. Hence the final sample size was 353 items. In addition, we recorded the price of gas in the community.

4. Results

4.1. Challenges Faced by the Store Manager

The store manager expressed awareness that healthy foods are often priced beyond affordability for community members. However, the store is not in the community as a charitable organization and she is required to show a profit for her employer. She – the store manager - was very explicit that she is expected to make a profit, transportation costs are daunting, she cannot set prices herself except in very limited circumstances, and staffing is inconsistent. Despite these challenges, she embraces her role in the community, celebrates and values the efforts of her long-term employees, and works long hours to meet the needs of community members. The store manager clearly articulated her belief that, while she had to make a profit, she also worked hard to be respectful of community members and to meet their needs. In the community talking circle she put this belief succinctly:

> *I have a deep respect for Aboriginal people otherwise I wouldn't be here and definitely people should not be here if they don't have that respect. I'm here to help. I can't solve all the problems, but I can certainly listen to people's ideas and suggestions and take that to my superiors.*

During the talking circle it also became clear that, despite the difficult position that a store manager occupies in a community in which the store has a monopoly, goods are expensive, and community members are on limited incomes, relations with the community are cordial and respectful. Despite a general perception that prices were very high, participants in the talking circle did not blame individuals who worked at the local Northern Store. It was acknowledged that "*the company is…looking after its bottom line*". While critique of the western profit motive was inherent in this discussion, participants were careful to stress that "*the Northern Store Manager, we said don't blame everything on her because of what's inside the store…I think that's the reason why she's here today. She wants to work with us*." As another elder put it, the community "*knows that you have your own bosses and can't just lower the price*." The problem is not the attitude of the store manager, or the efforts of her employees, but the fact that a profit must be made in a context in which transportation costs are extremely high and spoilage occurs more quickly due to distance.

Although solutions to the problem of the cost of food were not discussed, the distinction drawn between prices in the store, and the positive community contribution of the store manager, suggest that community members, and the store manager herself, believe that solutions to the access and pricing problems in the community may lie outside the capitalist model. While community members recognized the conflicted position of the store manager as an individual it is also clear that the Northern Store does not meet community needs for affordable food. These muted sentiments echo the "successive rebuffs of the Northern Store" in Inuit communities that instead have formed cooperatives to meet their food needs in a culturally appropriate manner (Findlay, 2006, p.49).

[2] Miichim is the Anishininimowin or Oji-Cree (Severn dialect) word for food. Oji-Cree Language consists of many different dialects.

4.2. Price Structure: Evidence from the Store Manager

The store manager acknowledged that prices for fresh food in the community may be beyond the means of a significant proportion of the population and that access to healthy food in the community is therefore compromised: "*I would have to agree with you that the prices are exorbitant in this particular community. I think prices are exorbitant in every northern community*".

4.2.1. Control of Fixed Price Margins

Our food cost survey, conducted the same day that the store manager was interviewed, confirmed that prices in the community were significantly greater than in Thunder Bay, Ontario. This difference in prices, however, is not surprising, given that the purpose of the store is to make a profit, and that profit margins are compromised by the high fixed costs of transportation and high rates of spoilage in remote stores. As the store manager clearly articulated, the store is in the community to provide a service, but it is also owned by shareholders who expect a return on their money. As she put it, "*we don't want to lose money. We're in the business to make money. That's why we're here…That's the very definition of a business, you have to make profit. If you don't make a profit you're not in business.*" In this context, foods have to be priced to reflect the cost of transportation and the reality of low volume of sales, a combination that inevitably drives up costs to the seller and over which the store manager does not have control.

In particular, the food store manager works within fixed price margins. With few exceptions, prices are set from Winnipeg, Manitoba, not by the store manager. As she explained,

> "*we don't set any pricing here at all whatsoever, and we're not allowed to do that. That comes in electronic batches from Winnipeg. Every morning we have a bunch of batches that come in our main pick computer and we execute the batches to the tills and the prices go up or down accordingly*."

Supplies in the community Northern Store are shipped from Winnipeg, Manitoba and the source is not determined by the local store manager, but by the wider company management. The North West Company (NWC)

> "*owns its own warehouse. It's called WLSC [Winnipeg Logistics Service Centre] in Winnipeg. All of our dry goods come from WLSC and they source it out from there where they get their goods…from a variety of different places. We also own our own meat and produce supplier, just called Crescent Multi Foods, [Wholesale Distributors], owned by the NWC. And they source out from California, Mexico, it just depends on the time of year*".

The local manager, therefore, does not have control over the base cost of items shipped to the store, although the volume achieved by integration is undoubtedly advantageous in terms of pricing. Within the Northwest Company, prices are set by region, depending on the costs of transportation, but within each region, prices are consistent with only minor adjustments for freight rate differences: "*in Northern Ontario West, pricing is all the same. It's not across the company*" and between communities "*the freight rates are different, so the prices do fluctuate, like we talked about, a few cents here and there, but not anything that you can really notice significantly*". Communities supplied out of the Toronto, Ontario base of the company, such as Attiwapiskat on James Bay, are on a different price grid.

4.2.2. Ordering as a Key Determinant of Price

What the manager does control, and which ultimately does have an impact on pricing, is the volume of each product that is shipped in a particular week. Orders are based on historical consumption, and reflect predictable weekly fluctuations in demand. The manager's work in predicting sales is crucial to maintaining low pricing in the store, as spoilage and shrink reduce profits and the costs of shrink are reflected in the price batches shipped out from Winnipeg, Manitoba:

> *And you have to remember that every bit of shrink that we have, people sometimes forget that anything is reported right, and it's sent to head office and the prices are set according to shrink…You lose money you have to make up for it.*

It is in this area that the work of the store manager is crucial to the well-being of the community purchasers as reducing shrink ultimately reduces prices. This imperative, however, reduces the range and volume of products, particularly perishable goods such as milk, fruit, vegetables and meat, available in low sale weeks, a fact which can create frustration for those purchasers not constrained by finances. To meet the needs of such customers, the store manager is willing to place special orders: "*they need something, come and ask me, I'll get it for you, if I can get it. I can't necessarily get every single thing people want, but I will certainly try and go from there*". The store manager also saves money for her customers by making extensive use of the warehouses in town that are stocked via the winter road to avoid incurring the costs of flying goods into the community.

Ordering and stocking adequate supply for the year is crucial to pricing, but the manager has control only over what she orders, not whether or not it arrives. It is clear that short winters could have a very negative impact on pricing in the community. If the road does not last long enough to transport goods into the community, prices will go up:

> *it depends on how long this winter road lasts. The prices would stay the same all year long as long as we have it in our warehouse… Anything heavy we try our best to make sure we have enough winter road stock to get us through the year until the next winter road.*

The North West Company takes on the cost of warehousing goods in the community, as it is recognized that community members cannot stock up adequately for the year as individuals. Housing is often cramped and many community members are on fixed incomes: "*because most people here are on a fixed income, I wouldn't say they stock up*". Community members do, however, travel as individuals on the winter roads, despite the dangers inherent in such travel, and prices in the store are reduced in the winter because of this competition. This is the only time of year when the Northern Store does not have a monopoly in the community and during that time, according to the store manager, "*our sales drop every year*".

Beyond ordering and stocking based on weekly demand and maximum use of the winter storage facilities, the store manager has limited control over pricing. Items available at sale prices are often things that upper management has acquired in bulk, so that reduced prices are available from source: "*a lot of times we'll get what's called an automatic ordering system from head office…if there's something that they have a bundle of, they'll pass on savings to us so we can pass on savings to our customers*."

4.2.3.Shrink and Loss Management

In the effort to reduce shrink, or loss, the store manager also has control over some short term pricing. For example, when fresh items are getting close to their best before date, items can be put on the reduced rack

> *But there are things that you have to be very careful with. A lot of perishables you just can't do that with. You can't put out outdated milk for example. That's just a loss and that's it.*

More crucial, however, is avoiding shrinkage or loss by ordering only an amount that will be purchased before its best before date because of the impact of losses on long term pricing. This means, in practice, that there is always tension between the desire to stock the store with healthy, fresh produce, meat and milk, and the risk that such goods will spoil before they are sold, a risk that is increased by the distance from source "*so you can't store raspberries, blueberries, strawberries because they only last so long even if it's in a cooler*".

The final major challenge noted by the store manager is related to staffing. Wages, as in any retail establishment, are not high, and there is significant turnover in staff and difficulty in replacing workers who leave. This concern with staff turnover was echoed by a community member in the talking circle who had worked at the store in the past: "*when we worked, the entire staff would be there for years, over 5 yrs, most of them anyway. Now, they just come and go. They're there one week and gone the next*".

4.3. Store Pricing: Empirical Results

4.3.1.Procedure

We collected prices, starting in the community, and compared those prices with directly comparable goods in two Thunder Bay, Ontario stores. Members of the community obtain the majority of their food from the local Northern Store which has a monopoly on market foods for 9 to 10 months of the year. The choice of survey items was therefore driven, if not by the desires of the community, as they do not stock the store, at least by what is available to them. We were able to survey 353 items that were available not only in the community, but also in two Thunder Bay, Ontario supermarkets. The Revised Northern Food Basket surveys only one supermarket; we used data from a chain and an independent store, and compared average prices since shoppers in Thunder Bay, Ontario can and do plan their expenditures based on competitive pricing. Finally, while the Revised Northern Food Basket only surveys food items, essential household items, including personal and feminine hygiene products, impact the cost of groceries, and such products were included in our survey. At a basic level, our data is driven not by arbitrary external determinations of what it would be desirable for people in the community to eat, but by availability in the local Northern Store. We believe that our methodology provides a much better basis for comparison with southern communities and more detailed breakdowns with regard to pricing than does the Revised Northern Food Basket. This data can be used to develop targeted solutions to the food insecurity crisis.

4.3.2.Technical Tractability

Store prices were transformed using natural log transformation (ln) and subsequently used as the dependent variable for all analyses. Log transformations were used rather than price ratios because (i) differences between prices are not homogeneous but rather increase with increasing community prices ($r = .84$, $p < .001$);

and (ii) ratios lack symmetry as a result of how they are calculated[3]. By using log transformations these two limitations are eliminated. Descriptive statistics reported include means (*M*), standard deviations (*SD*), and 95% confidence intervals (95% CI).

First, to determine how prices varied by Thunder Bay, Ontario store location and whether prices were obtained from identical items versus items requiring substitutions (brand or weight and size), a repeated measures (store location) analysis of variance (ANOVA) was performed with identical/non-identical items as the independent variable. Fresh fruits, vegetables, meat, and poultry were not considered identical items as the country of origin and supplier could not be determined. Second, to compare prices between the community and Thunder Bay and to determine if prices were different between identical and non-identical store items, a repeated measures (location: community vs. Thunder Bay) ANOVA was performed with identical/non-identical items as the independent variable.

Secondary analyses were performed to examine the effect of various store item characteristics on price ratios between the community and Thunder Bay. Repeated measures (community vs. Thunder Bay) ANOVAs were performed with the following characteristics as independent variables: perishables/non-perishables, liquid/non-liquid, frozen/not frozen, canned/not canned, heavy (≥ 1Kg or 1L)/not heavy (< 1Kg or 1L), and fresh fruits and vegetables/other items.

4.3.3.Basic Price Differentials

A total of 353 prices were collected and were comprised of 158 perishable (56% of total perishables priced in the community) and 195 non-perishable store items (75% of total non-perishables priced in the community). Prices in Thunder Bay varied by store and whether items priced were identical in brand, weight and size[4]. Prices for identical items (n = 134) were significantly higher in one store (mean price ratio = 1.12, 95% CI [1.07, 1.18]) than the other. On average, prices for identical items were 12.6% higher in one store, which is equivalent to a $12.60 price difference for a $100 purchase. In contrast, prices for non-identical items (n = 219) were not significantly different between the two Thunder Bay stores (price ratio = 0.96, 95% CI [0.91, 1.02]). When comparing prices of identical and non-identical store items combined between the two Thunder Bay locations, the mean price ratio was 1.02, 95% CI [0.98, 1.06]. This is equivalent to a 2.4% price difference between two stores or a $2.40 price difference for a $100 purchase. As a result, log prices from the two Thunder Bay stores were subsequently averaged and used to represent prices that consumers would typically pay in Thunder Bay, Ontario.

Prices in the community were significantly greater than in Thunder Bay[5]. The mean price ratio (community:Thunder Bay) was 1.64, 95% CI [1.58, 1.70]. This ratio is equivalent to a $64.50 price difference on a $100 purchase. Because the mean price ratio is calculated from a sample of store items in the community rather than all of the items sold in the store, the mean price ratio for all store items is estimated from the sample and is calculated to be in the range of 1.58-1.70. Hence this represents a $158.90 - $170.30 cost in the community per $100 cost in Thunder Bay for all items in the community Northern Store. It is important to note that this price range does not imply that for every $100 spent in Thunder Bay, $158.90-$170.30 will be spent in the community as individuals typically do not purchase a representative sample of all store items available in the community Northern Store. For a breakdown of estimated price ratios by item category the reader is directed to Table 3. Prices were not significantly different between identical and non-identical store items. Hence additional analyses used all store items for comparisons. Gas prices were also greater in the community ($1.47) than in Thunder Bay ($1.02). The calculated price ratio is 1.43.

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[3] When the community prices are higher than Thunder Bay prices, they produce ratios (community/ Thunder Bay) that take on values greater than 1 (i.e. a range from one to potentially a very large number).

[4] Repeated measures ANOVA revealed a significant main effect on the repeated measures variable [store location; F (1, 351) = 4.60, p = .033, partial η^2 = .033], no significant main effect on the independent variable [identical/non-identical store items; F (1, 351) = 3.21, p = .074, partial η^2 = .009], and a significant interaction effect [location x identical/non-identical store items; F (1, 351) = 15.06, p < .001, partial η^2 = .041]. To check for a potential problem with heterogeneity of variance, two follow-up t-tests were performed: 1) an independent groups t-test on the mean of the two Thunder Bay stores; and 2) an independent groups t-test on the difference between the two store locations to test the interaction effect. The unequal variances version (Welch's t-test) of the two t-tests led to the same decision and hence heterogeneity of variance was not considered a serious problem.

[5] Repeated measures ANOVA revealed only a significant main effect on the repeated measures variable [location: community vs. Thunder Bay; F (1, 351) = 765.66, p < .001, partial η^2 = .686]. To check for a potential problem with heterogeneity of variance, two follow-up t-tests were performed: 1) an independent groups t-test on the mean of the community and Thunder Bay prices; and 2) an independent groups t-test on the difference between the community and Thunder Bay prices to test the interaction effect. The unequal variances version (Welch's t-test) of the two t-tests led to the same decision and hence heterogeneity of variance was not considered a serious problem.

Figure 2 illustrates the comparative price distributions between the community and Thunder Bay food and household items expressed as natural logarithm transformations. Data points located above the reference line (diagonal line) represent store items that are more expensive in the community while those located below the reference line represent items that are cheaper in the community. The scatter plot illustrates the large variability in price ratios for the 353 items surveyed.

Insert figure (2) about here

4.3.4.Substantial Price Differentials

A total of 15 items had price ratios that were two standard deviations above the mean and are listed in Table 1. Items are listed in decreasing price ratio and represent 2.5% of the items with the highest price ratios between the community and Thunder Bay. In contrast, Table 2 illustrates the 21 items with price ratios less than 1.0 (i.e. items that were cheaper in the community than in Thunder Bay).

Insert Table (1) about here

Insert Table (2) about here

Table 3 illustrates average prices of food and household items in the community and Thunder Bay by item category. While average prices in the community are considerably greater than in Thunder Bay, the variability in pricing is also typically greater in the community than in Thunder Bay.

Insert Table (3) about here

Store item categories yielding mean average prices that were at least double those found in Thunder Bay include fresh milk beverages, fruit (fresh and canned), refrigerated juices, liquid beverages (pop, juice and water), and pet food and supplies. Paper products, including toilet paper, paper towel, and facial tissue, was the only item category that was reported to be on average less expensive in the community than in Thunder Bay. This may be a result of brand differences. For instance, non-branded toilet paper (12 double rolls) available in the community at a price of $7.29 was compared to branded toilet paper at an average price of ($10.48) in the Thunder Bay stores, as this was the only comparative brand available in the same format (12 double rolls). Similarly, this occurred with waxed paper where only 25ft rolls were available in the community in comparison to 75ft and 200ft rolls in the Thunder Bay stores. Once the waxed paper prices were corrected for sizing, the resulting price ratio was 3.24, which accounts for the largest confidence interval reported for the wrapping products category among all categories of store items. These are also items which can be stocked and stored in advance, and which are brought in bulk via the winter road and are thereby less vulnerable to price fluctuation.

4.3.5.Perishable/non-Perishable Items

We were interested in exploring the role of various item characteristics including perishable/non-perishable food items, frozen/not frozen food items, canned/not canned food items, liquid/non-liquid items, heavy (≥ 1Kg or 1L)/not heavy (< 1Kg or 1L) items, and fresh fruits and vegetables/other perishable food items on price ratios between the community and Thunder Bay. While log prices of perishable food items were significantly greater than non-perishable food items there was no significant difference in mean price ratios (community:Thunder Bay) between perishable (n = 158, M = 1.69, SD = 1.36) and non-perishable (n = 136, M = 1.67; SD = 1.37) food items[6]. Similarly, there was no significant difference in mean price ratios between frozen (n = 27, M = 1.73, SD = 1.31) and non-frozen (n = 267,M = 1.68, SD = 1.37) food items[7], as well as between canned (n = 22, M = 1.82, SD = 1.29) and non-canned (n = 272, M = 1.67, SD = 1.37) food items[8]. A comparison between liquid and non-liquid items revealed significantly greater log prices for liquid items than non-liquid items, and a significant difference in mean price ratios (community:Thunder Bay) between liquid (n = 70, M = 1.87, SD = 1.40) and non-liquid (n = 283, M = 1.59; SD = 1.38) store items[9].

[6] The repeated measures ANOVA revealed a significant main effect on the independent variable [perishable/non-perishable food items; F (1, 292) = 27.992, p < .001, partial η^2 = .087] and the repeated measured variable [location; community vs. Thunder Bay; F (1, 292) = 821.34, p < .001, partial η^2 = .738] but no interaction effect [F (1, 292) = 0.064, p = .800, partial η^2 = .000].

[7] The repeated measures ANOVA revealed a significant main effect on the repeated measures variable [location; community vs. Thunder Bay; F (1, 292) = 288.836, p < .001, partial η^2 = .497] but not the independent variable [frozen/non-frozen; F (1, 292) = 1.468, p = .227, partial η^2 = .005], and no interaction effect [frozen/non-frozen x location; F (1, 292) = 0.242, p = .623, partial η^2 = .001].

[8] The repeated measures ANOVA revealed a significant main effect on the repeated measures variable [location; community vs. Thunder Bay; F (1, 292) = 262.711, p < .001, partial η^2 = .474] and the independent variable [canned/non-canned; F (1, 292) = 25.291, p < .001, partial η^2 = .080], but no interaction effect [canned/non-canned x location; F (1, 292) = 1.543, p = .215, partial η^2 = .005].

[9] The repeated measures ANOVA revealed a significant main effect on the repeated measures variable [location; community vs. Thunder Bay; F (1, 351) = 638.664, p < .001, partial η^2 = .645] and a significant interaction effect [liquid/non-liquid x location; F (1,

Hence liquids are priced disproportionately higher in the community than in Thunder Bay. As liquids tend to be heavier items we decided to compare heavy and light items (regardless of whether the items were liquid or not). The analysis revealed similar findings to the liquid/non-liquid analysis in that heavy (≥1kg) items were priced disproportionately higher in the community than in Thunder Bay as shown by the significant difference in mean price ratios (community:Thunder Bay) between heavy (n = 63, M = 2.05, SD = 1.39) and non-heavy (n = 290, M = 1.57; SD = 1.36) store items[10]. Similarly, fresh fruits and vegetables (n = 27; M = 2.02; SD = 1.53) had a significantly greater mean price ratio than other food items (n = 267; M = 1.60; SD = 1.30)[11]. Hence, fruits and vegetables are also priced disproportionately higher than other perishable food items in the community than in Thunder Bay.

5. Discussion

The range of products available at the Northern Store, particularly packaged goods, was impressive, and reflected a clear effort by the store manager to provide for the varied needs of community members. All perishable goods on display were within their best before date range and the food was presented in an appealing manner. While the store did not have as much variety within food categories, such as apples and oranges, as would be available in the south, sufficient variety was available for a healthy diet. Low fat meats, dairy products and whole grain breads and pasta were not abundant and conversations with the store manager confirmed that these products are not high sellers. The store manager asserted that in stocking the store her decisions are driven by "*sales and shelf life…and the needs of our customers*".

Unlike the Revised Northern Food Basket data, our study did not find a difference in price ratio between perishable and non-perishable goods. Instead, our data indicated that items weighing more than 1Kg, fruits and vegetables, and liquid items resulted in higher price ratios. Yet these three variables only explain a relatively small proportion of the variability in price ratio. Thus, other factors not examined are contributing to the variability in price ratio. The data also suggests that the Northern Store is working hard to try to keep prices at reasonable levels, and that factors intrinsic to the items themselves are problematic for pricing. For example, fresh fruits and vegetables have a shorter shelf life in the community than in Thunder Bay because they are in transport longer before becoming available for sale; as the store manager put it, produce has "*a certain amount of shelf life right, so you can't store raspberries, blueberries, strawberries because they only last so long even if it's in a cooler. It takes 3-4 days tops, and then they're pretty much garbage*". And heavy items are expensive to transport. There is a significant risk, with the early closure of winter roads due to warm weather, that other items may increase in price and that data might be different in the future. The store manager was adamant that shipping large quantities of goods in the winter is essential in mitigating cost differentials (but this is not possible, of course, with fruits and vegetables or with perishable liquids). Large, very full, warehouses, testify to the work that is done in transporting goods in the winter season.

Our data to some degree supports the protocol used by the Revised Northern Food Basket (RNFB). The protocol states that "while using average prices based on surveys in several stores in southern communities may produce slightly different results, such differences would be minor compared to the north-south differences that the Department's price monitoring activity is intended to measure" (INAC, 2007, p.23). Our data showed considerable price variability for RNFB food items surveyed (n = 59) between the two Thunder Bay supermarkets. The price ratios ranged from 0.39 to 2.41, however, the mean price ratio was 1.02, which represents a $2.40 difference on a $100 purchase. However, thrifty shoppers do not have to purchase all items in one store and this measure may be somewhat artificial in terms of real household spending.

A challenge in our methodology is that data collection was extremely time intensive. Four people spent close to a full day pricing in the Northern Store in the community and again at each of the two supermarkets in Thunder Bay. Also, a weakness of our survey methodology is that tracking of prices from year to year may be difficult since the list was driven by availability in the community, not external choice. It may, however, be possible to survey all food and household items in other northern communities with smaller grocery stores.

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351) = 14.040, p < .001, partial η^2 = .038], but no significant main effect on the independent variable [liquid/non-liquid; F (1, 351) = 1.784, p = .182, partial η^2 = .005].

[10] The repeated measures ANOVA revealed a significant main effect on the independent variable [weight: ≥ 1 Kg/< 1 Kg; F (1, 351) = 52.831, p < .001, partial η^2 = .131], the repeated measures variable [location: community vs. Thunder Bay; F (1, 351) = 713.038, p < .001, partial η^2 = .670], and a significant interaction effect [weight x location; F (1, 351) = 37.103, p < .001, partial η^2 = .096].

[11] The repeated measures ANOVA revealed a significant main effect on the repeated measures variable [location; community vs. Thunder Bay; F (1, 156) = 347.620, p < .001, partial η^2 = .690], a significant main effect on the independent variable [fruits & vegetables/non-fruits & vegetables; F (1, 156) = 9.187, p < .001, partial η^2 = .077], and a significant interaction effect [location x fruits & vegetables/non-fruits & vegetables; F (1, 156) = 13.319, p < .001, partial η^2 = .079].

6. Conclusion and Implications of our Findings

Government efforts to improve the access to healthy food in northern communities continue to fail. In Canada, the most extensive government response to this crisis has been the Food Mail Program which subsidized postage rates to reduce the cost of fresh and frozen foods in fly-in communities (Indian and Northern Affairs Canada, n.d.). Many of the communities that were eligible for the program did not use it, perhaps reflecting the fact that reducing postage prices is insufficient to bring food prices into the range of affordability for people on very limited incomes (Indian and Northern Affairs Canada, n.d.). It is also possible that particular foods, vegetables and fruits, for example, need to be targeted and directly subsidized to ensure their availability for northern populations. This is particularly important in light of the diabetes crisis, which is overtaking remote northern Indigenous communities. For improved control of blood sugars dietary interventions focus on increasing consumption of fruits and vegetables, and fish, as well as switching to low fat meat and dairy products, increasing fiber intake by eating whole grains, and reducing consumption of concentrated sugars (Special Diets Expert Review Committee, 2008). Many of these emphases are challenging for inhabitants of northern communities: fruits and vegetables, as noted above, are expensive; and, fish is sometimes poisoned by industry (CBC). Traditional foods are healthy, but not always available, and the price of gas and equipment impedes access for many members of the participating community.

Western-based low fat meat and dairy products and whole grain breads and pasta are available in limited quantity and variability in the store, perhaps because the price of such goods is beyond the means of most community members. The Northern Store, however, has kept the price of artificial sweeteners close to those of Thunder Bay with a resulting average price ratio of 1.15 (N = 3). The current supplement under Social Assistance for those with diabetes is $80.93 in Ontario and $119.71 in Northern Ontario, which includes northern Indigenous fly-in communities. This reflects a price ratio of 1.48, which is lower than the average price ratio found in our study (1.65) and the average price ratio (northern communities: Thunder Bay) reported in the 2009 RNFB survey results for northern Ontario (n = 4, M = 1.72). But even this reduced disparity must be eliminated.

This study provides the data necessary to make this argument to government. Targeted subsidies, expansion of access to traditional foods, the development of northern community gardens and, perhaps most importantly, a proportional increase in the Social Assistance supplement for those in isolated communities with special diets, are potential solutions to the food insecurity crisis that emerge from our data (Bird et al., 2008). The government appeared to finally be recognizing the extent of the crisis of food security and ill health in the north with the announcement by Indian and Northern Affairs Canada (2010a) of the Nutrition North Canada Program, a food subsidy program that was intended to replace the unsuccessful Food Mail Program, and to be fully implemented by April of 2011. However, communities that have not partaken of the Food Mail Program, are not eligible for funding under Nutrition North Canada. Nutritious foods are to receive the highest rate of government subsidy and the list of eligible items has recently been expanded to include all non-food items that were available under the Food Mail program, at least until October 2012 (2011). Ironically, however, bottled water has been removed from the approved list (Indian and Northern Affairs Canada, 2010b), despite the fact that as of April 30, 2011, 122 remote northern Aboriginal communities were under a boil water advisory (Health Canada, 2011).

The government also committed an extra $45 million dollars over two years to develop "culturally appropriate nutrition and health promotion initiatives" (Indian and Northern Affairs Canada, 2010a). Nutritious foods and appropriate health promotion initiatives have not been defined. The announcement instead highlights the need to consult community experts about supports that are necessary to enhance healthy living but excluded communities are not engaged in such dialogue. Yet it is apparent that inadequate nutrition, ill health, lack of access to traditional foods, and exceedingly high market food prices are also problems in excluded, but remote, northern Indigenous communities. The dilemma is clear here; food versus profitability. Helping the north is a matter of dealing with priorities. These priorities must not be based on an occidental capitalist – social or economic – model. Subsistence cannot be managed with profitability models as it is based on very complex social, cultural and economic systems. Solving food (in)security issues in the north is directly related to solving problems related to the food chain including transportation, food accessibility and food availability.

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References

Bird, S., Wiles, J., Okalik, L., Kilabuk, J., & Egeland, G. (2008). Living with Diabetes on Baffin Island. *Canadian Journal of Public Health*, *99*(1), 17-21.

CBC (2010). *Grassy Narrows protests mercury poisoning*. Retrieved from http://www.cbc.ca/news/health/story/2010/04/07/tor-grassy-narrows.html?ref=rss

Department of Justice Canada. (1982). *Canadian Charter of Rights and Freedoms*. Retrieved from http://laws-lois.justice.gc.ca/eng/charter/page-1.html

Dana, L. P. (2010). Nunavik, Arctic Quebec: Where cooperatives supplement entrepreneurship. *Global Business and Economics Review*, *12*(1/2), 42-71.

Findlay, I. (2006). Putting cooperative principles in practice: Lessons learned from Canada's North. *Review of International Co-operation*, *99*(1), 44-52.

Government of Canada. (2011). Nutrition North Canada: Food eligibility list. Retrieved from: http://www.nutritionnorthcanada.gc.ca/fel/index-eng.asp

Health Canada. (2011). *First Nations, Inuit and Aboriginal health: Drinking water and wastewater*. Retrieved from http://www.hc-sc.gc.ca/fniah-spnia/promotion/public-publique/water-eau-eng.php#how_many

Indian and Northern Affairs Canada. (n.d.). *Food mail program.* Retrieved from http://www.ainc-inac.gc.ca/nth/fon/fm/index-eng.asp

Indian and Northern Affairs Canada. (2010a). Government of Canada announces Nutrition North Canada to support healthy eating in the North. Retrieved from http://www.ainc-inac.gc.ca/ai/mr/nr/m-a2010/23356-eng.asp

Indian and Northern Affairs Canada. (2010b). *Food Mail Program - Nutrition North Canada*. Retrieved from http://www.ainc-inac.gc.ca/ai/mr/nr/m-a2010/23356fm-eng.asp

Indian and Northern Affairs Canada. (2007). *The Revised Northern Food Basket*. Ottawa, ON: author.

Ontario Ministry of Health (1997). *Mandatory Health Programs and Services Guidelines*. Ontario Ministry of Health, Public Health Branch.

Power, E. M. (2005). Determinants of healthy eating among low-income Canadians. *Canadian Journal of Public Health*, *96*(Suppl 3), 537-542.

Robidoux, M., Haman, F., & Sethna, C. (2009). The Relationship of the Burbot (Lota lota L.) to the Reintroduction of Off-the-Land Foods in the Sandy Lake First Nation Community. *Biodemography and Social Biology* 55, 12-29.

Russell, W. (2004). The people discovered their own approach to life: Politicizing development discourse. In Blaser, M., Feit, H., and McRae, G. (eds.) *In the Way of Development: Indigenous Peoples, Life Projects and Globalization*, 130-150.

Smith, L. Tuhiwai. (1999). *Decolonizing Methodologies : Research and Indigenous Peoples*. New York, N.Y: St. Martin's Press.

Schnarch, B. (2004). Ownership, Control, Access, and Possession (OCAP) or Self-Determination Applied to Research: A Critical Analysis of Contemporary First Nations Research and Some Options for First Nations Communities. *Journal of Aboriginal Health*, *1*(1), 80-95.

Special Diets Expert Review Committee (2008). *Final Report*. Ministry of Community and Social Services.

United Nations. (1948). The Universal Declaration of Human Rights. Retrieved from http://www.un.org/en/documents/udhr/index.shtml#a25

Weber-Pillwax, C. (2001). "What is Indigenous Research?" *Canadian Journal of Native Education*, *25*(2), 166-174.

World Food Summit (1996). *Rome declaration on world food security*. Retrieved from http://www.fao.org/docrep/003/w3613e/w3613e00.htm

World Health Organization, (1986). Ottawa charter for health promotion. Retrieved from http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf

Appendix

Figure 1: A three-prong Comprehensive Food Accessibility Assessment Model.

Figure 2: Comparative Price Distributions Between the Community and Thunder Bay Food and Household Items Expressed as Natural log Transformations.

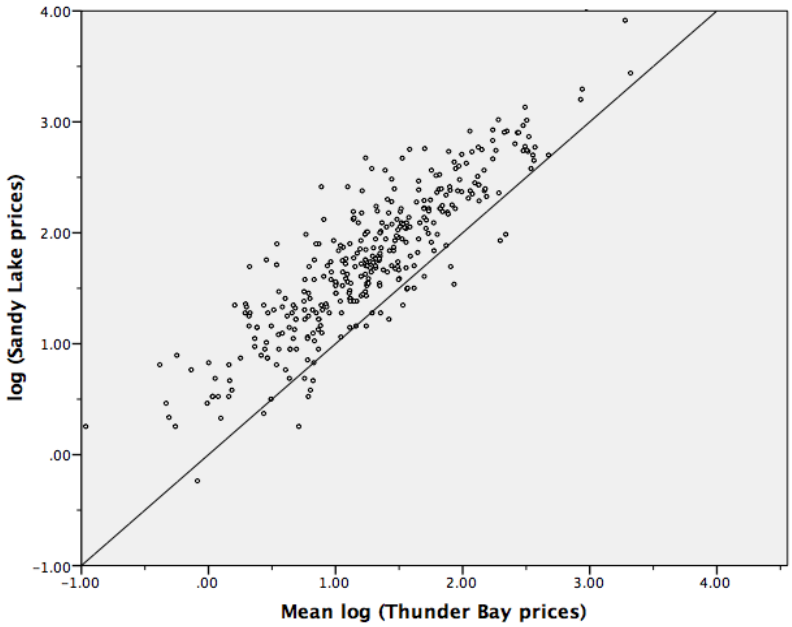

Table 1: Top 2.5% Food and Household Items (*n* = 15) with the Highest Price Ratios (> M +2SD)

Perishables	Community price	Thunder Bay price	Non-perishables	Community price	Thunder Bay price
Pineapple (unit)	$11.19	$2.48	Table salt (1 Kg)	$5.45	$1.38
Tomatoes (/kg)	$14.52	$3.82	Throat Lozenges (18)	$11.19	$2.99
Cooking Onions (3 lb)	$6.69	$1.73	Coffee Mate (450 g)	$13.18	$3.63
Oranges (/kg)	$10.79	$3.50	Diet Cola (2 L)	$5.79	$1.62
Apples – Macintosh (/kg)	$8.34	$2.50	Waxed Paper (25 ft)	$5.54	$1.71
Green Onions (/bunch)	$1.29	$0.40	White Vinegar (4 L)	$12.99	$4.04
Bananas (/kg)	$2.25	$0.70	Fine Granulated Sugar (4 Kg)	$15.69	$4.88
			Sunlight Dishwashing Liquid (950 mL)	$7.29	$2.30

Table 2: Food and Household Items with Price Ratios < 1.0 (*n* = 21).

Perishables	Community price	Thunder Bay price	Non-perishables	Community price	Thunder Bay price
Astro Plain 2% yoghurt (750 g)	$3.39	$4.14	Chips regular (320 g)	$3.59	$3.64
Packaged Caesar salad (323 g)	$5.45	$6.78	Chips regular – Pringles (214 g)	$3.19	$3.30
Kiwi (unit)	$0.79	$1.09	Disposable Lady Razor Twin (5)	$1.45	$1.55
			Tea bags (100, 315 g)	$4.45	$4.79
			Old South Fruit Beverage - Grape (330 mL)	$1.99	$2.14
			Dental Floss Waxed (50.2 m)	$3.59	$3.92
			Hand Sanitizer (236 mL)	$4.49	$4.91
			Beef Jerkey (100 g)	$4.99	$5.47
			Hair conditioner (400 mL)	$3.19	$3.54
			Denture Tabs (40)	$4.49	$5.06
			Idohoan Mashed Potatoes Roasted Garlic (113 g)	$1.95	$2.28
			Hot Chocolate (500 g)	$3.85	$4.63
			Hot Sauce (177 mL)	$1.79	$2.25
			Facial Tissue White 2-Ply	$1.69	$2.30
			Bathroom Tissue Double Roll (12)	$7.29	$10.48
			Plastic Garbage Bags (40)	$6.89	$9.98
			Ibuprofen Tablets 200 mg (24)	$4.65	$7.06
			Aluminum Foil (12”x 25’)	$1.29	$2.19

Table 3: Average Prices and Mean Price Ratio of Food and Household Items by Category

Item Category	# Items Sampled	Community Average Price (*SD*)	Thunder Bay Average Price (*SD*)	Mean Price Ratio (95% CI)
Perishables				
Milk and milk beverages - fresh	8	$4.38 ($2.01)	$2.02 ($0.44)	2.05 (1.68, 2.49)
Cream and creamers	4	$4.02 ($0.69)	$2.74 ($0.74)	1.50 (1.21, 1.86)
Yogurt	4	$3.92 ($1.82)	$3.15 ($1.40)	1.27 (0.93, 1.725)
Cheese products	16	$7.41 ($3.32)	$4.99 ($1.84)	1.47 (1.33, 1.62)
Butter and margarine	9	$8.97 ($5.01)	$5.33 ($2.86)	1.65 (1.44, 1.88)
Fresh and frozen meat	24	$13.09 ($5.59)	$8.97 ($4.25)	1.49 (1.37, 1.63)
Fresh and frozen poultry	7	$12.31 ($4.54)	$7.49 ($2.54)	1.63 (1.48, 1.79)
Processed meat	22	$7.37 ($3.81)	$5.32 ($2.83)	1.40 (1.29, 1.53)
Fresh fruit	11	$5.95 ($3.52)	$2.72 ($1.74)	2.09 (1.57, 2.78)
Fresh vegetables	17	$6.26 ($4.21)	$3.39 ($2.12)	1.92 (1.57, 2.36)
Juices - refrigerated	7	$8.68 ($3.12)	$3.18 ($1.07)	2.69 (2.48, 2.93)
Frozen products	27	$7.40 ($3.76)	$4.25 ($1.99)	1.73 (1.56, 1.91)
Non-perishables				
Seasonings	6	$5.19 ($2.31)	$3.66 ($2.01)	1.48 (0.99, 2.23)
Sugar and artificial sweeteners	5	$8.55 ($4.75)	$4.72 ($1.15)	1.65 (1.04, 2.62)
Baking items	6	$7.05 ($6.95)	$3.99 ($3.33)	1.69 (1.27, 2.24)
Breakfast cereal and bars	10	$9.72 ($4.28)	$5.57 ($2.26)	1.77 (1.58, 1.98)
Milk (canned, powder, whiteners)	4	$8.78 ($4.39)	$4.53 ($2.25)	1.92 (1.24, 2.97)
Coffee, tea and hot chocolate	3	$7.10 ($5.11)	$5.17 ($0.80)	1.20 (0.64, 2.25)
Drinks (powdered, liquid)	7	$4.68 ($2.03)	$3.37 ($1.56)	1.77 (1.41, 2.22)
Fruits (canned)	4	$3.55 ($1.21)	$1.82 ($0.92)	2.10 (1.59, 2.76)
Vegetables (canned, packaged)	4	$3.09 ($1.09)	$1.87 ($0.32)	1.59 (1.01, 2.50)
Condiments and sauces	8	$5.35 ($2.25)	$3.21 ($0.99)	1.58 (1.28, 1.95)
Spreads and syrups (jam, pb, etc.)	6	$7.52 ($1.92)	$4.44 ($0.86)	1.70 (1.42, 2.04)
Rice and pasta	8	$5.30 ($3.44)	$2.80 ($1.87)	1.933 (1.694, 2.20)
Tomato and pasta sauces	4	$2.75 ($0.83)	$1.61 ($0.65)	1.79 (1.54, 2.07)
Meat, fish and alternatives (canned)	7	$3.18 ($1.19)	$1.96 ($0.87)	1.69 (1.27, 2.23)
Soup	6	$2.64 ($1.28)	$1.81 ($0.58)	1.42 (1.16, 1.73)
Crackers and cookies	7	$5.77 ($1.83)	$3.28 ($0.70)	1.77 (1.52, 2.05)
Snacks (chips, candy, chocolate)	21	$3.44 ($1.30)	$2.32 ($0.95)	1.54 (1.40, 1.69)
Beverages (pop, water, etc.)	5	$6.67 ($4.44)	$2.48 ($1.36)	2.64 (2.01, 3.45)
Pet food and supplies	5	$26.81 ($24.24)	$12.41 ($10.30)	2.03 (1.65, 2.49)
Paper products	4	$8.54 ($5.37)	$8.66 ($4.57)	0.92 (0.70, 1.21)
Wrapping products (foil, plastic, etc.)	5	$3.81 ($2.40)	$3.54 ($3.68)	1.33 (0.71, 2.50)
Laundry products	7	$13.35 ($4.28)	$9.40 ($3.68)	1.49 (1.16, 1.91)
Personal care products	16	$5.01 ($2.29)	$3.88 ($1.43)	1.30 (1.11, 1.53)
Feminine hygiene products	4	$8.11 ($0.64)	$4.84 ($1.05)	1.71 (1.49, 1.97)
Pharmaceutical products	9	$9.60 ($4.00)	$6.86 ($3.03)	1.43 (1.06, 1.92)
Baby products	7	$11.98 ($11.37)	$9.76 ($10.14)	1.374 (1.234, 1.53)