

Can Nova Scotians Afford to Eat Healthy?

Report on 2010 Participatory Food Costing

Appendices



A Project of the Nova Scotia Food Security Network
and the Participatory Action Research and Training Centre at
Mount Saint Vincent University in partnership with community partners, and
the Nova Scotia Department of Health and Wellness,
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Appendix A - Overview of Food Costing in Canada and Nova Scotia

Food costing initiatives in Canada have a history dating back over fifty years (1). The federal government became involved in food costing in 1973 when it established the *Food Prices Review Board* to address public concern around speculated increases in the cost of food (2). The Food Prices Review Board, with professional consultation, devised the first food basket to monitor and explain food price increases and make recommendations for government policy (3).

In 1980, Agriculture and Agri-Food Canada took over monitoring food costs and developed the Nutritious Food Basket, a standardized list of 64 foods, the Thrifty Nutritious Food Basket was later developed to better reflect purchasing patterns of lower income families (3). These tools were used to provide benchmark information on the cost of a nutritious diet in 18 cities across Canada. The data were widely used by health, nutrition, community, Non-Governmental Organizations (NGO's), and social service agencies for policy, planning, and advocacy work.

Health Canada developed the food costing tool, the National Nutritious Food Basket (NNFB) in 1998 which was used for food costing in Nova Scotia from 2002 to 2008 (3). In 2009 Health Canada released an updated NNFB(4), which was adapted to include a local foods component and was used for 2010 participatory food costing in NS. The NNFB is a standard list of 67 basic foods that meet Canadian nutrition recommendations, reflect the average consumption patterns of Canadian households, and are palatable and economical. While the NNFB does not constitute a recommended diet in itself, it can be priced to determine the cost of a basic nutritious diet for different age and gender groups. The food items within the NNFB are minimally processed foods that are widely available in grocery stores and commonly eaten by most Canadians in amounts that would provide a nutritionally adequate, balanced diet for specific age and gender groups. Together, the 67 food items can be used to prepare a week's worth of meals and snacks that meet nutrient requirements for both adults and children. Costs are kept low by including sale priced items and excluding expensive items, such as prepared meals, restaurant foods, convenience items, organic food, and junk food. Also, non-food items such as toilet paper and household cleaners are not included, making the basket less representative of what the average Canadian would actually purchase at a grocery store in a typical month.

Since Health Canada has not supported regular costing of food in the provinces and northern territories. It is left to community groups, provincial organizations and provincial governments to invest the time and resources necessary to conduct food costing surveys. Some provinces have mandated the costing of the NNFB on an annual or bi-annual basis within government infrastructure. Food costing studies are traditionally conducted by professionals such as public health nutritionists and home economists.

In Nova Scotia, recognizing the need to address the issue of food insecurity, the Nova Scotia Nutrition Council (NSNC) partnered with the Atlantic Health Promotion Research Centre (AHPRC), the Community Action Program for Children (CAPC), the Canada Prenatal Nutrition Program (CPNP) and Nova Scotia Family Resource Centres/Projects (FRC/Ps) to form a core group of committed partners, collectively known as the Nova Scotia Participatory Food Security Projects, who initially came together to complete a participatory food costing project throughout Nova Scotia. In 2002, under the leadership of Dr. Patty Williams (Principle Investigator) funding was secured from the Population and Public Health Branch, Atlantic Region, Health Canada to examine the affordability of a nutritious diet in Nova Scotia, using participatory approaches. From 2002 to 2010 funding for over a dozen participatory food security projects was secured through the Nova Scotia Government to build on this work by involving women experiencing food insecurity in order to affect policy change. Currently, leadership for the NS Participatory Food Costing project sits with the Nova Scotia Food Security Network and is supported by FoodARC (Food Action Research Centre) at Mount Saint Vincent University.

Using the NNFB, results from the 2002 food costing indicated that it would cost \$572.90 to feed a reference family of four¹ a basic nutritious diet in Nova Scotia (5). When this cost was put into the context of the cost of basic living expenses, these data showed that Nova Scotians relying on income assistance (IA) or minimum wage jobs could not afford to buy a basic nutritious food basket once the cost of other basic needs were factored in. In addition, it was found that the average cost of the NNFB was significantly higher in rural areas and within smaller stores compared with those in urban areas and larger stores.²

In 2004, the Nova Scotia Department of Health and Wellness (formerly the Nova Scotia Department of Health Promotion and Protection) granted funds to the Nova Scotia Participatory Food Security Projects in order to complete a project aimed at developing options for a model to support ongoing food costing in the province and to undertake participatory food costing in the fall of 2004 and the spring of 2005 as well as to develop a policy lens for food security for NS. The results of the 2004/2005 food costing serve as a comparison to the 2002 results and as further impetus for the continued work that was needed in order to bring about change to improve food security in Nova Scotia.

It was recognized that regular monitoring of the cost of a nutritious food basket could be an effective way of assessing whether households could afford a basic nutritious diet over time and their access to locally produced foods and that these data were necessary to inform policy and programs over time. Moreover, the participatory research process has been successful in engaging individuals affected by food insecurity, professionals, community-based organizations and policy makers in working together to generate rigorous and locally relevant data on food insecurity in NS.

The results of the 2007 food costing were released in April 2008 and are available elsewhere (6). The 2008 and 2010 food costing findings are the basis of the reports: *Cost and Affordability of a Nutritious Diet in Nova Scotia: Report on 2008 Participatory Food Costing*(7) and *Can Nova Scotians Afford to Eat Healthy?: Report on 2010 Participatory Food Costing*(8).

In 2006 the province of NS, as part of the food security priority of the Healthy Eating Strategy, committed to funding ongoing Participatory Food Costing (9, 10). Initially food costing was conducted annually (2007, 2008) and thereafter biannually (2010, 2012). In 2007 a local foods component was added to examine the availability and relative cost of locally produced foods in NS grocery stores.

¹ The reference family of four consists of a man and woman 31-50 years of age, a 13 year old boy and a 7 year old girl.

² Small stores are defined as those less than 15,000 square feet, and large stores are any over that size.

Appendix B - Methods for 2010 Food Costing Project

Survey Tool

Health Canada's standardized survey tool, the *National Nutritious Food Basket (NNFB) 1998*(3) was used to collect food-costing data in 2002, 2004/05, 2007 and 2008 as part of the Nova Scotia Participatory Food Costing Project. This tool was validated for use in Nova Scotia prior to the 2002 food costing (5). In 2008, Health Canada updated the tool to reflect more current dietary recommendations for Canadians and consumption patterns of Canadians based on the 2004 Canadian Community Health Survey (Nutrition Module) (4). The 2008 NNFB includes a list of 67 foods that can be used to calculate the cost of a basic nutritious diet for different age and gender groups. The food items within the NNFB are minimally processed foods that are widely available in grocery stores and commonly eaten by most Canadians in amounts that would provide a nutritionally adequate, balanced diet for specific age and gender groups. The basket does not include snack foods, baby foods, foods eaten outside the home, organic foods, foods for special diets, foods from farmers' markets, or foods of little nutritional value. As well, it assumes that people shop for their groceries in one grocery store and prepare meals from scratch. In Nova Scotia, the NNFB has been adapted and named the Participatory Food Costing Survey Tool.

Adaption of the NNFB to Examine the Cost and Availability of Local Food

An addition was made to the NNFB during the 2004/05 food costing project by adding a 'local component' to address the cost and availability of locally produced food products, specifically meat and produce items. On the October 2004 food basket form, costers were asked to record if the food item with the lowest price was produced locally. Local was defined as grown or produced in Atlantic Canada. This component was modified for the June 2005 food basket form, so that costers were asked to note if the lowest priced food item was local, note if local was available (regardless of price) and record the place of origin listed either on the food packing itself or on the store signage advertising the food item. In 2010, the local food component of the Survey Tool was further adapted (based on an independent study, the results of which will be reported separately (11)). Changes to the 2010 survey tool include altering the definition of "local" to include just the Maritime provinces (Nova Scotia, New Brunswick and PEI), in previous years, "local" also included Newfoundland (Atlantic Provinces). Other changes included altering the tool so that food costers could provide more information about where the product was grown or produced.

The local foods component was added to the Participatory Food Costing Project, in part, to align with the Healthy Eating Nova Scotia Strategy (HENS). Food security is one of the four priority areas of HENS, and it calls for public policies to increase the affordability of locally produced food and local food production and distribution systems. By including a local component in the NNFB we can monitor if the government is successfully addressing local farmers/producers needs to be able to distribute their goods and services in the local community. In addition, because the environmental and community economical benefits of supporting local food are an integral component of food security, Halifax's Ecology Action Centre's³ Food Action Committee⁴ have partnered with the Participatory Food Costing Project Working Group to determine how best to use these data and to provide consultation on analysis and interpretation of the local foods data.

³ The Ecology Action Centre is a provincial environmental organization that has been working to build a healthier, more sustainable Nova Scotia since 1971.

⁴ The Food Action Committee is interested in promoting the social, economic, and environmental benefits of locally produced food

Grocery Store Sampling and Selection

In order to develop the sample of grocery stores to be costed, we first need to generate a list of all the grocery stores in the province. To do this, the head offices of the major grocery store chains were contacted by letter to inform them of the project and to ask for their support in generating and updating a complete list of grocery stores. The list of Nova Scotia grocery stores for 2010 was compiled by starting with the list of all stores generated during the 2008 food costing project. The accuracy of this list was checked in several ways. The 'store locator' feature on the website of major grocery store chains was used as well as searching the online yellow pages, using the search terms "Nova Scotia" and "retail grocers". Members of the Food Costing Working Group and partnering community organizations from across the province crosschecked the compiled list by comparing it to their knowledge of existing grocery stores in their communities. The list, including the location and size of stores was also validated by head offices of the grocery stores. If a store was owned independently, this information was confirmed by telephoning the store directly. In some instances smaller stores were called directly to ensure that they carried the items required for the NNFB survey. Any store that required a paid membership was excluded from the final list of available stores.

There were 173 grocery stores on the final list. Strata criteria were based on a) the population of each DHA b) the size category of the store (based on square footage)⁵, and c) the population of the community in which the store was located in order to determine if the store was located in an urban or rural area⁶. It was desirable that all regions of the province were represented in the sample, therefore each county or part of a county within a District Health Authority (DHA) territory was used as a stratum. This approach also allowed for estimating regional as well as provincial cost estimates, and comparisons between regions. Of the 173 stores on the list, 88 were classified as "larger grocery stores" and 85 were classified as "smaller grocery stores". The store size and urban/rural designation were used as stratification variables because of anticipated price differentials between larger and smaller stores and urban and rural stores.

Forty-six stores were selected for food costing in 2010. The stores chosen were sampled from the list of all 173 grocery stores in NS identified by DHA, county, size category and whether the store was urban or rural. A stratified sampling method was used, based on location and store size. The overall sample size was 46 (this sample size met budgetary considerations and was deemed to be a large enough sample by a statistician when the model was being developed). Stores were randomly selected and the number of stores selected was proportional to the number of stores in each region. There were 23 larger and 23 smaller stores in the sample. The 46 stores were randomly split into two subsamples of 23, to be surveyed in each of the two weeks from June 11-24th, 2010⁷.

⁵ For the purpose of this project, stores smaller than 15,000 square feet were classified as "smaller stores" and those 15,000 square feet and over were considered "larger".

⁶ A rural area was defined as towns and municipalities outside of the commuting zone of urban centres with a population of 10,000 people or less. Conversely, an urban area was defined as a community with a population of greater than 10,000 people.

⁷ In 2010, we decided to sample across two weeks to determine if there was a price difference in groceries between the second and third week of the month. Food Costing partners suggested there may be a price increase in groceries in the third week of the month, to correspond with when the monthly Child Tax Benefits are distributed. Our 2010 results indicate there was no significant price difference between the first and second weeks.

Training of Food Costers

With the support of federally funded Family Resource Centres/Projects (FRC/Ps) and grocery stores, five regional food costing training sessions were held throughout Nova Scotia (in Truro, Lower Sackville, Shelburne, Lawrencetown and Baddeck) in May and June, 2010. One full day train-the-trainer session was held in May to train ten community partners from across Nova Scotia on the new NNFB to enable them to provide support for food costers and to help facilitate training sessions within their regions. In total, 49 people attended the six food costing training sessions. Many individuals had been involved with the food costing project for several years and had received training in the past; however, due to the changes in NNFB and length of time since food costing was last conducted in 2008 everyone was trained using the new tool. Food costers were provided the training guide, *"What Does it Cost to Eat Healthy in Your Community: A Training Guide to Participatory Food Costing"*, developed by the NS Participatory Food Security Projects to serve as a reference tool (12). For the 2010 training sessions, several handouts of the training guide were updated and provide as handouts. These included: "What You'll Need to Know" and "Basic Instructions for Food Costers" documents.

On-site Price Collection

Food costing data were collected during the weeks of June 11th – 24th, 2010. All stores were surveyed within a two-week period to ensure consistency across sale items and to avoid variability in food prices. Prior to collecting food costing data, a letter was faxed to grocery store head offices to inform them which of their stores had been selected.

Each store was contacted a second time by project staff to inform them of the date and time that food costers would arrive to conduct the survey. Food costers worked in pairs and were instructed to identify themselves to the manager when they arrived at each store. All food costers were provided name badges identifying them with the project, thus assuring store managers of their legitimacy. A set of standardized guidelines for the in-store food pricing procedures based on the NNFB was provided at the training sessions and was followed by the food costers. The guidelines helped to ensure that pricing was done consistently in all stores throughout the province.

Forty-two people from 15 FRC/Ps throughout Nova Scotia planned and carried out the food costing data collection. Twelve other people from community organizations provided support for food costers in their communities. Using the Participatory Food Costing Survey Tool, they recorded the lowest available price for the 67 food items. Transportation and childcare costs were reimbursed in order to facilitate participation, and honoraria were provided to food costers to recognize their time and effort in the data collection process. Food prices obtained from for each food item were recorded by the food costers on a NNFB form for each store and returned to the research team via mail in stamped envelopes that had been provided at the training sessions.

Calculating Food Costs

A cost averaging spreadsheet, adapted by a statistician from a tool provided by the Ontario Ministry of Health,(13) was used to manage data and facilitate price calculations. Data analysis was overseen by the project coordinator in consultation with the principal investigator (PI) and a statistician.

Prior to entering the data from the food costing forms into the spreadsheet, the recorded prices were reviewed and checked to ensure accuracy by a research assistant and the project coordinator with

consultation by the PI when there were questions. For example, if a price for an item was recorded using a size that was not specified on the NNFB, the specified size price was crosschecked with the alternative using unit prices, calculations were made and prices adjusted accordingly. As well, when produce was priced per bunch or head, the calculated price per kilogram was double-checked for accuracy. If a weighing scale was not available in a grocery store, the average weight for all stores was used with the price recorded for that particular store. Similarly, if an item was sold individually and the scaled weight was not available, the average weight from all other stores for that item was used. Once the reviewed prices were entered into the spreadsheet, a research assistant verified each calculation and spreadsheet entry. Any changes or revisions to calculations or prices entered were recorded and initialed on the survey forms.

If an item was missing from the survey form, no value was entered to the 'survey data' spreadsheet. The cost averaging spreadsheet was designed to calculate the average price for missing items using the existing data from all other prices entered for that particular item. In the June 2010, 209 of 3074 items were missing a price on the original NNFB survey, representing 6.8% of all data collected in that time period. The cost averaging spreadsheet is formulated so that purchase prices from each food item entered into the spreadsheet are automatically multiplied by a scalar to convert all prices to a common unit. The scaled price is then multiplied by a weight value that represents the relevant weighting or contribution of that particular food item within the overall food grouping.

Weekly costs of the food basket for a reference household of four and 20 different age and gender groups, including pregnancy and breastfeeding were then generated. The reference household of four consists of a woman and a man between the age of 31 and 50, a 13-year-old boy, and a seven-year-old girl. These data were then used to determine the cost for households of different sizes and ages and gender compositions. The cost for households smaller and larger than four people was adjusted to account for economies of scale. Specifically, cost was decreased by a factor of 5% to account for each person beyond a four-person household, and increased by a factor of 5% for each person less than a four-person household.⁽¹²⁾ Monthly costs were calculated by multiplying the weekly cost of the NNFB by 4.33 corresponding to the number of weeks in a month.

To protect the identity of participating stores, a minimum of three stores was used to calculate all averages for NNFB costs. Therefore, for District Health Authorities where less than three stores were surveyed, stores were combined with an adjoining District Health Authority to calculate averages.

Regional Gatherings to Review Preliminary Findings

After preliminary findings were calculated, regional gatherings were held in Truro, Lower Sackville, Shelburne, Lawrencetown and Baddeck. The purpose of these gatherings was to bring food costers and project partners together to reflect on the findings, discuss the implications and to talk about recommendations that should be made in this report. As well, there were discussions about how the findings should be used and made available in communities across Nova Scotia.

Ethical Considerations and Participation

Throughout all phases of this research, involvement by research participants was supported through reimbursement for child-care and transportation. Additionally, food costers who assisted with collecting food costing data in the grocery stores were provided with honoraria (\$45/store) to compensate them for their time and contribution to the research. Furthermore, to protect the identity of stores sampled, the food costing data from all grocery stores have been categorized and aggregated and data have not been presented on any individual store.

Appendix C – Sample Letter to the Grocery Store

May xx, 2010

Dear (store manager),

The Nova Scotia Food Security Network (NSFSN), Department of Health Promotion and Protection (DHPP), and Mount Saint Vincent University in partnership with community organizations across the province, are conducting a Food Costing survey to determine the cost of a basic nutritious diet.

In preparation for the Food Costing survey we have contacted the head offices of major grocery stores as well as independent retailers to obtain approval for this study. Your store has been selected through a random sampling of grocery stores throughout Nova Scotia to participate in this important research. We invite your participation in this study by allowing food costers to collect pricing information in your store during the week of June 11th - 17th (or June 18th – 24th), 2010.

The aim of this project is to estimate the generic cost of a healthy diet across the province. A survey tool called the National Nutritious Food Basket (NNFB), which was developed by Health Canada, is used to determine this cost. The NNFB consists of a list of 67 common foods that represent a basic nutritious diet for Canadians. The data collected using this tool is used to raise awareness of the cost of a healthy diet and to compare the adequacy of various income levels to provide that healthy diet. Food costing has been done for several years in many provinces across Canada and was most recently conducted in Nova Scotia in June 2008.

By surveying food prices from various grocery stores across the province we will determine the extent to which Nova Scotia families can afford a healthy diet. The sample of selected stores was chosen from a list of all grocery stores across the province. Prices from all stores will be pooled to determine an average cost of a healthy diet in Nova Scotia. Individual prices, food brands and store names will be kept strictly confidential. **Participating grocery stores will not be identified and the costs, either for specific foods or for the nutritious food basket will never be released for any one store.** This survey is not intended to determine the cost of food items per store but rather the average cost of eating a nutritious diet.

The food pricing will be conducted by two individuals from a community organization in your area. With your permission, those completing food costing will spend approximately 120 to 180 minutes in your store. You will be informed of the date that the food pricing will take place in your store in advance and food costers will identify and introduce themselves to store managers before beginning the food pricing. As well, they will wear badges indicating they are part of the Provincial Participatory Food Costing Project.

Your participation in this project is greatly appreciated and we look forward to working with you. Please do not hesitate to contact me at (902) 457-5548, if you have any questions. We will be contacting you by phone within the next week to discuss your participation.

Sincerely,

Cynthia Watt
Provincial Participatory Food Costing Coordinator
Participatory Action Research & Training Centre on Food Security
Mount Saint Vincent University

Appendix D - Methods for Constructing Affordability Scenarios

The assessment of income adequacy and the financial impact of purchasing a basic nutritious diet requires assumptions about actual income, costs of goods and services, and what is considered essential for a basic standard of living.(14) To estimate the affordability of a basic nutritious diet, monthly costs for food, shelter, and other essential expenses were compared to average monthly incomes for six hypothetical household types:

- 1) Reference household of four consisting of two adults between 31 and 50 years of age and two children (a girl aged 7 and a boy aged 13 years);
- 2) Household of four consisting of a lone woman between 31 and 50 years of age and three children (two boys aged 7 and 10 and a girl aged 12 years);
- 3) Household of five consisting of two adults between 31 and 50 years of age and three children (a boy aged 14 years and two girls aged 7 and 9 years);
- 4) Household consisting of a lone pregnant woman aged 19-30 years;
- 5) Household consisting of a lone man aged 19-30 years; and
- 6) Household consisting of a lone senior woman aged 75+ years.

The following explains the sources of data for Tables 3-7 in the report of the 2010 food costing.

INCOME

Median Income

The median annual incomes were based on Statistics Canada's 2008 data table on "Median total income, by family type, by province and territory" (the most recent numbers at the time of data collection).(15) In 2008, the median household income in Nova Scotia was \$69,910 per year. In Table 3 in the 2010 food costing report, the median income household of four has an annual combined gross household income of \$69,910 per year, with one adult in the household earned 2/3 of \$69,910 amounting to \$46,606.33 per year and the other adult earned 1/3 to equaling \$23,303.33 per year. In order to determine a monthly gross income for the household, these yearly earnings were divided by 12 for each adult. Then a disposable income (income after taxes) was calculated for each adult by applying appropriate Federal and Provincial taxes, as well as Canada Pension and Employment Insurance, using the Payroll Deductions Online Calculator on the Canada Revenue Agency Website: <https://apps.cra-arc.gc.ca/ebsi/rhpd/startLanguage.do?lang=English>

Average Hourly Wage for Full-time and Part-time Employees

In September 2009, Statistics Canada indicates that the average hourly wage for a full-time and part-time worker in Nova Scotia was \$20.18 and \$13.20.(16) In the dual worker scenario (1FT, 1PT): Adult one worked full-time at 40 hours per week and adult two worked part-time at 20 hours per week accumulating \$55,659.55 gross income per year. Appropriate Federal and Provincial taxes, as well as Canada Pension and Employment Insurance were applied using the Payroll Deductions Online Calculator on the Canada Revenue Agency Website. Full-time wages were calculated at 40 hours per week and part-time wages at 20 hours per week. To calculate a monthly gross income, multiply number of hours worked by hourly wage and multiple by 4.33.

Minimum Wage

At the time of food costing (June 2010) minimum wage was \$9.20 per hour. As of October 2010 minimum wage was increased to \$9.65/hr.(17) As food costing was conducted in June 2010 the previous minimum wage of \$9.20 was used. Scenarios in which there are two adults in the household assume that adult one is working full time (40 hours per week) and adult two is working part-time (20 hours per week) for \$9.20 per hour. Weekly rates were multiplied by 4.33 to estimate monthly gross incomes for each adult. Earnings of both adults were then added together to result in a gross monthly income of \$2,390.16. Then a disposable income (income after taxes) was calculated for each adult by applying appropriate Federal and Provincial taxes, as well as Canada Pension and Employment Insurance, using the Payroll Deductions Online Calculator on the Canada Revenue Agency Website.

Working Income Tax Benefit (WITB)

The Working Income Tax Benefit is intended to provide tax relief for eligible working low-income individuals and families who are already in the workforce and to encourage other Canadians to enter the workforce (18). Of the 2008 scenarios, only the lone female parent household with three children, earning minimum wage was eligible for the WITB. An approximate WITB amount was calculated using the Canada Revenue Agency's WITB Online Calculator at: <http://www.cra-arc.gc.ca/ebsci/icwb/witb/WitbController>.

Old Age Security

Old Age Security basic pension is available to all seniors (in 2010 it was available to anyone over 65). The OAS basic pension is taxable at both the federal and provincial levels. The average monthly OAS benefit to all recipients in 2010 was \$490.47 (19).

Guaranteed Income Supplement

To be eligible for the Guaranteed Income Supplement (GIS), seniors must be receiving an Old Age Security basic pension and meet certain income requirements (19). The average monthly GIS benefit for a single person in 2010 was \$452.04.(19) A 2010 report indicates that in 2006, however approximately 145,500 Canadian seniors who were eligible for the GIS did not receive it (20). There is a requirement that seniors reapply for the GIS each year; further, women are more likely than men to neglect to subscribe to GIS when eligible (21). Therefore, in our senior woman household, we developed two scenarios: one where she is in receipt of GIS, and one where she is not.

Canada Pension Plan

Almost every Canadian between the ages of 18 and 70 years who is employed contributes to the Canada Pension Plan (CPP) and is entitled to a retirement pension once they reach 60 years of age. Only those who contribute can receive this pension. The average monthly CPP benefit for retired persons in 2010 was \$504.50 (22) for individuals who start receiving benefit at age 65. For the senior woman household, in one scenario she is in receipt of the average OAS and CPP benefits only. In the second scenario, she is in receipt of OAS, CPP and GIS benefits.

Income Assistance (IA)

In 2010, the Personal Allowance in Nova Scotia for a non-institutionalized adult (18 years and older) was \$214.00 per month.(23) The maximum basic Shelter Allowance, whether a family rents or owns a home, is as follows: \$300 for a single member household, \$570 for a single female in her 3rd trimester to prepare for a 2 bedroom apartment, \$620 for dual parent family with two dependants, and \$620 for any family with three or more members.(23)

Other forms of assistance, such as transportation and childcare allowances may also be available to households. The maximum amount a family is eligible to receive to cover transportation costs is \$150.00 per month per adult, while \$400.00 is the maximum allowable for child care costs per month.(23) Families only receive the full amounts if their expenses meet or exceed this amount. A family spending \$140/month on child care would only receive \$140 for their child care allowance. Amounts for other forms of assistance are often determined on a case by case basis with decisions influenced by variables such as whether the adults of the household are seeking work, involved in an employment program or educational upgrading, or need transportation to a medical appointment, etc. A Child Care Subsidy Program is available to qualifying households with children under 12 years; this program is addressed in the “Child Care Expenses” section below. The Maternal Nutritional Allowance of \$29.00 per month is available to expecting mothers; this is available from the date the IA caseworker is notified of the pregnancy or birth of a child up to and including 12 full months after the birth of the child.(23)

Canada Child Tax Benefit (CCTB)

The Canada Child Tax Benefit is an initiative of the federal, provincial, and territorial government that “aims at reducing child poverty and helping low to modest income families by providing them a set amount of money per month per child.” The Canada Revenue Agency’s Online Calculator (24) was used to estimate the monthly amount of CCTB households would receive. The online calculator requires information regarding province of residence, total number of children under 18, individual and spouse/common-law partner net income, and Universal Child Care Benefit (UCCB) income. The Calculator estimates Canada Child Tax Benefit as well as the Nova Scotia Child Benefit and the National Child Benefit Supplement (if applicable). These benefits are paid to one parent, on a monthly basis, and are non-taxable. The CCTB is composed of: Basic Monthly Amount, National Child Benefit Supplement and the Nova Scotia Child Benefit.

Goods and Service/Harmonized Tax Credit (GST/HST)

To estimate quarterly GST amounts the Canada Revenue Agency’s Online Calculator requires information regarding province of residence, total number of children under 19 years, net income, the net income of a spouse or common-law partner if applicable, and UCCB income.(25) To calculate monthly amounts, the amount calculated for each quarter was divided by three.

Universal Child Care Benefit (UCCB)

The UCCB is a federal benefit paid to all Canadian families with children aged 6 years of age and under to assist with child care costs. An amount of \$100.00 is paid each month per child who is under the age of 6. The UCCB is considered taxable income (26). None of the scenarios presented in this report include children aged six and under.

INCOME DEDUCTIONS

The four main deductions applicable to most employed Nova Scotians include federal and provincial income taxes, Employment Insurance deductions and Canada Pension contributions.

Federal Tax Deductions

Applicable federal tax deductions on gross incomes were calculated by using Canadian Revenue Agency's Nova Scotia's Payroll Deduction Calculator that became effective on January 1, 2008. The *12 pay periods per year calculator* was used to calculate monthly federal tax deductions for each individual in the household earning an income (27).

Provincial (Nova Scotia) Tax Deductions

Applicable provincial tax deductions on gross incomes were calculated by using Canadian Revenue Agency's Nova Scotia's Payroll Deduction Calculator that became effective on January 1, 2008. The *12 pay periods per year calculator* was used to calculate provincial tax deductions for each individual in the household earning an income (27).

Employment Insurance (EI)

EI is a system of income benefits based on hours worked in a year, earnings and previous use, and new employment benefits. Employees contribute \$1.73 per \$100 insurable earnings, with maximum insurable earnings set at \$43,200 for 2010. Applicable Employment Insurance premiums were calculated using Canadian Revenue Agency's Nova Scotia's Payroll Deduction calculator that came effective January 1, 2008. The *12 pay periods per year calculator* was used to calculate EI premiums for each individual in the household earning an income (27).

Canada Pension Plan (CPP)

Every person in Canada over the age of 18 who earns a salary must pay into the Canada Pension Plan. Contributions are based on annual earnings that fall between a pre-determined minimum and maximum level. The minimum level is frozen at \$3,500. The maximum level is based on increases in the average wage and adjusted each January. For the 2010 year the maximum CPP contribution was 2,163.15. The contribution rate is 4.95% on earnings over \$3,500. Applicable CPP contributions were calculated using Canadian Revenue Agency's Nova Scotia's Payroll Deduction Calculator that became effective January 1, 2008. The *12 pay periods per year calculator* was used to calculate CP contributions for each individual in the household earning an income (27).

The following online calculator was used to calculate Federal Tax, Provincial tax, EI and CPP for affordability scenarios where one or more individuals were employed:

<https://apps.cra-arc.gc.ca/ebsi/rhpd/startLanguage.do?lang=English>

EXPENSES

In previous affordability assessments shelter and utilities, telephone, transportation, child care, clothing, footwear, personal care expenses, household cleaning supplies and food have been established as basic essential needs for a typical household (6, 14, 28, 29). Affordability scenarios using the 2010 food costing data have included these expenses.

Shelter

Shelter costs were estimated using a combination of Statistics Canada's Survey of Household Spending's (SHS) estimates for "rented living quarters" in Nova Scotia and the Canada Mortgage and Housing Corporations' report on average rents for 1, 2 and 3 bedroom apartments in Nova Scotia from April 2009 – April 2010.

To obtain a base number to estimate shelter costs, we used the SHS data table for Nova Scotia, 2009. We selected the second quintile median amount spent on "rented living quarters". The second quintile refers to spending habits of those in the second-lowest income bracket, as a conservative estimate of the spending habits of those on Income Assistance or working for Minimum Wage. The SHS reports spending on a yearly basis, so to determine monthly rent, the figure for "rented living quarters" was divided by 12.

Additionally, the SHS only reports one figure for "rented living quarters" it does not differentiate costs between 1, 2, and 3 bedroom apartments. Upon consultation with a statistician, it was decided the SHS number would be used, however, we calculated adjustment ratios for 1, 2 and 3 bedroom apartments and applied these to the SHS number.

The Canadian Mortgage and Housing Corporation (CMHC) uses Rental Market Housing Report to determine average rental costs for 1, 2 and 3 bedroom apartments bi-yearly in each province (but unlike the SHS they do not differentiate costs between income quintiles). The CMHC's "Nova Scotia Highlights" report for April 2009-April 2010 was used to create adjustment ratios for 1, 2, and 3 bedroom apartments, which were applied to the average rental cost in Nova Scotia as reported in the 2009 SHS.

The CMHC "Nova Scotia Highlights" report released each Spring reports the average rent for 1, 2 and 3 bedroom as well as the average rent for all apartments in Nova Scotia for the current and previous years. To calculate the adjustment factor for a one bedroom apartment, the NS average rent for a 1 bedroom apartment in April 2009 was divided by the average NS rent for all bedroom types for April 2009; this same process was used for April 2010. The average of these ratios was then taken to obtain the 1 bedroom adjustment factor and applied to the SHS median amount. See Table 1 for example of shelter calculations for a 1 bedroom apartment, and Table 2 for CPI adjustment calculations for a 1 bedroom apartment. Table 3 summarizes how our estimates were calculated for 1, 2 and 3 bedroom apartments.

Table 1: Example of how to Calculate Shelter Costs for a 1 bedroom apartment

Description of Step	Example Calculation
Step 1: Find SHS median amount for “rented living quarters” for a Nova Scotia household in the second quintile. Divide by 12 to obtain a monthly estimate for rent.	$\$7500 / 12 = \$625/\text{month}$
Step 2: Calculate the 1 bedroom adjustment factor using CMHC’s “Nova Scotia Highlights” report.	<p>Average NS rent 1 bdrm for April 2009 / Average NS rent all bedroom sizes for April 2009 = $\\$680.00 / \\$761.00 = .89356$</p> <p>Average NS rent 1 bdrm for April 2010 / Average NS rent all bedroom sizes for April 2010 = $\\$694.00 / \\$783.00 = .88633$</p>
Step 3: Average these two ratios to determine the 1 bedroom adjustment factor:	c) $.89356 / .88633 = 0.88995$.
Step 4: Apply adjustment factor to SHS median amount for “rented living quarters” for a Nova Scotia household in the second quintile.	$\$625.00 \times .88995 = \556.22
Step 5: Finally, apply cumulative CPI adjustments from January 2010 – June 2010 = 0.4%. CPI adjustments for various goods are provided on a monthly basis by Statistics Canada(30) (An example of a CPI adjustment is provided in Table 2)	$556.22 \times 1.004 = \$558.44/\text{month}$ for a 1 bdrm apartment

Table 2: Example CPI adjustments – 1 bedroom apartment (30)

2010 Affordability Scenarios		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	% change		0.00%	0.00%	0.40%	-0.10%	0.00%
SHS Figure							
1 bedroom apartment	\$556.22	\$556.22	\$556.22	\$558.44	\$557.89	\$557.89	\$558.44

Table 3. Calculation of Provincial Shelter Cost Estimates

Apartment Size	Median amount “rented living quarters” 2 nd Quintile Nova Scotia (SHS)(31)	1,2 and 3 bedroom adjustment factors (CMHC) (32)	CPI adjustment (January-June 2010)	Provincial Estimate for Shelter Cost
3 Bedroom Apartment: Family of Four Family of Five	= \$625/ month	3 bdrm 2009/ total average for 2009 =\$1022/\$761=1.342969 3 bdrm 2010/ total average for 2010 = \$1000/783 = 1.27714 Average: 1.341656 & 1.27714 =1.31005	0.4%	\$822.02
2 Bedroom Apartment: Single Female, 3 rd Trimester	= \$625/ month	1 bdrm 2009/ total average 2009 =\$808/\$761=1.06176 1 bdrm 2010/ total average 2010 = \$842/\$783=1.07535 Average: 1.06176 & 1.07535 = 1.068556	0.4%	\$670.52
1 Bedroom Apartment Single Individual	= \$625/ month	1 bdrm 2009/ total average 2009 =\$680 / \$761.= 0.89356 1 bdrm 2010/ total average 2010 = \$694 / \$783 = 0.88633 Average: 0.89356 & 0.88633 = 0.88995.	0.4%	\$558.44

Power

Conservative estimates for 1 and 3 bedroom apartments were determined using the Nova Scotia Power Energy Calculator. To determine the average kWh for different apartment sizes, three researchers used the Nova Scotia Power Energy Calculator to independently make conservative estimates of the kWh usage for 1, 2 and 3 bedroom apartments. The averages of the estimates resulted in the 3 bedroom being based on 1100 usage kilowatt per hour (kWh) per month, the 2 and 1 bedroom calculations being based on 833 and 600 usage kWh per month, respectively.

The kWh per month are then multiplied by the domestic rate for the appropriate year. The domestic rates were retrieved from the NS Power website. There is a monthly base rate of \$10.83 that is added to the kWh per month calculation to determine overall monthly power usage.

Example: 3bdrm apartment

$$((1100\text{KWhrs} * \$ 0.11796) + \$10.83 \text{ base}) * 1.15 \text{ Harmonized Sales Tax (HST)}^8 = 161.67$$

Table 4. Approximate monthly Power and Electric Heat Cost by Apartment Size (June, 2010)

Apartment Type	Recommended kWhrs amount	Price: June, 2010
1 Bedroom	600	\$92.21
2 Bedroom	833	\$125.54
3 Bedroom	1100	\$161.67

Telephone

The monthly cost for basic local phone service after installation is \$29.60 per month in NS in 2010. This includes \$25.20 for basic local phone service, plus 15% tax plus the mandatory \$0.62 911 fee. Bell Aliant rates are used because they are the only communications provider accessible throughout the entire province of NS. This basic service does not include long-distance or special phone features (call management features-call display, call waiting, voicemail, etc.). This expense estimate also does not include the one-time service activation fee of a minimum of \$35.00.(33)

Transportation

Methods for estimating transportation expenses varied based on household scenarios, use of public transportation was assumed for single individual and private transportation costs for families.

⁸ Nova Scotia's Harmonized Sales Tax is 15%, which includes a 5% federal portion and 10% provincial portion, and is applied to the purchase of most goods and services.

Private Transportation:

In the family scenarios, the transportation costs are based on the median cost reported for owning and operating a private vehicle (based on the Canadian Survey of Household Spending, second quintile data, 2009). This includes monthly cost for gas, insurance, and car payments. Private vehicle ownership was chosen to reflect the reality that most Nova Scotians (60-75%)(34) live in rural areas where public transportation is simply not available. In most rural areas, access to a vehicle would be necessary for transportation to work, to a grocery store and to other amenities.

The SHS reports average household spending of goods and services in Canada, by province and by income quintile. Spending on items is reported as ‘average spending by household’ not average spending by particular family size. Therefore in consultation with a statistician, a scalar was used to determine spending cost by different family size. The SHS reports the average family size in each quintile. The second quintile family size was 1.94.(31)

Average household spending per year in second quintile was determined.

Average spending per month in second quintile was divided by 12 to calculate monthly spending

Average spending per person was determined as follows:

The average spending per household on private transportation was divided by the average family size of the quintile (1.94): $\$3170/12 = \$264.17/1.94 = \$136.17$ (spending per person).

Once average spending for one person was determined, a multiplier of 80.1% for each additional person was used: $136.17 \times 0.801 = 109.07$ (so for a 5 person household, $136.17 + 109.07 + 109.07 + 109.07 + 109.07 = \$572.35/\text{month}$)

The appropriate CPIs from January to June, 2010 were applied to the SHS December 2009 private transportation figure (the most up to date during the time of data analysis) to estimate the cost for June 2010 (the time when food costing data collection took place)

A cumulative CPI of -0.2% for a five person family = \$571.13

Table 5. CPI Component: Private Transportation(30)

2010 Affordability Scenarios		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	% change	1.70%	-0.50%	0.40%	0.00%	-0.10%	-1.70%
	SHS Figure						
5 person household	\$572.35	\$582.18	\$579.27	\$581.59	\$581.59	\$581.01	\$571.13
4 person household	\$463.38	\$471.26	\$468.90	\$470.78	\$470.78	\$470.31	\$462.31

Public transportation:

Transportation costs for the lone senior female (aged 75+), lone male and the lone pregnant female assumed the availability of public transportation. The costs for public transportation (bus and/or tax fares) were based on the Survey of Household Spending, second quintile (2009 data).

The SHS reports average household spending of goods and services in Canada, by province and by income quintile. Spending on items is reported as ‘average spending by household’ not average spending by particular family size. Therefore in consultation with a statistician, a scalar was used to determine spending cost by different family size. The SHS reports the average family size in each quintile. The second quintile family size was 1.94.(31)

Average household spending per year in second quintile was determined.

Average spending per month in second quintile was determined

Average spending per person was determined as follows:

The average spending per household on personal care was divided by the average family size of the quintile (1.94): $\$500.00/12 = 41.67/1.94 = \21.48 (spending per person).

The appropriate CPIs from January to June, 2010 were applied to the SHS December 2009 public transportation figure to estimate the cost for June 2010

A *cumulative* CPI of 4.9% for a single person = \$22.55

Table 6. CPI Component: Public Transportation(30)

2010 Affordability		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
Scenarios	% change	1.00%	-3.00%	1.00%	1.80%	1.30%	2.90%
	SHS Figure						
1 person household	\$21.48	\$21.69	\$21.04	\$21.25	\$21.64	\$21.92	\$22.55

Child Care Expenses

The NS Child Care Subsidy Program is a provincial program, and is not to be confused with the child care allowance provided by Income Assistance. However, families with low incomes may qualify for a pro-rated subsidy amount, as determined by the Department of Community Services. For the scenarios with children where parents are earning minimum wage and receiving IA, it was assumed parents had applied to the NS Department of Community Services’ Child Care Subsidy Program and subsidized child care spaces for each of their children was provided; however it is not clear what proportion of families earning minimum age apply for this subsidy.

All of the children in the affordability scenarios were of school age. Therefore, we determined child care costs based on the average daily cost of afterschool programs (\$12/day)(35). Childcare costs were

determined only for children 12 years and under. Subsidies are not available for children 13+ as it is assumed they can care for themselves.

If the child’s parent(s)’s income level was below the low income cutoff, they were assumed to receive a subsidized spot, and therefore would have some of their day care costs covered by the Child Subsidy Program. However, parents usually have to pay a parental contribution above the subsidy as the subsidy does not cover the whole cost. The exact amounts that parents pay are determined on a case by case basis, in consultation with a Child Care Subsidy Case Worker at NS Community Services. (36) To construct the affordability scenarios, it was decided that families on Income Assistance would receive a full subsidy of \$5.90/day.(36) We assumed that families relying on minimum wage incomes would receive a partial subsidy of \$3.90/day.

It was assumed that parent(s) required placements in daycare or after school program 5 days a week from 8am-5pm for their children. Therefore for children enrolled in school, it was assumed that afterschool care was required 5 days/week x 4.33wks/month = 21.65 days/month. This amount was then multiplied by the cost per day for day care of the specific age group (or the cost per day after subsidy if appropriate) to determine childcare costs.

Average cost of afterschool care in NS:

\$12/day (personal communication, Debra Reimer)(35)

Subsidy rates:

After school program full subsidy: \$5.90/day (36)

After school program partial subsidy: \$3.90 (rates can fluctuate – determined by a Child Care Subsidy Case Worker, dependent on need). We decided the family on minimum wage would receive a partial subsidy of \$3.90.

Costs to parents for after school program after subsidy:

For those on income assistance: \$6.10/day

For those earning minimum wage: \$8.10/day

Table 7: Reference Family of 4: Examples of Childcare Calculations

Childcare costs for median and average income household	child care costs at \$12/day * 21.65 days/month = \$259.80/month for one child in afterschool care.
Childcare costs for minimum wage household	Partial subsidy estimated at \$3.90/day Parents pay \$8.10 * 21.65 = \$175.37/month
Childcare costs for income assistance household:	Full subsidy = \$5.90/day Parents pay \$6.10/day * 21.65 = \$132.07/month

Clothing and Footwear, Personal Care and Household Cleaning Supplies

Expenses for clothing & footwear, personal care expenses and household cleaning supplies were calculated using data from the 2009 Survey of Household Spending (SHS) conducted annually by Statistics Canada.(31) This survey reports average household spending of goods and services in Canada, by province and by income quintile. The SHS was selected to be consistent with methods used in previous reports (6, 28, 37) for determining clothing and footwear, personal care and household cleaning supplies.

In the SHS, spending on items is reported as ‘average spending by household’ not average spending by particular family size. Therefore in consultation with a statistician , a scalar (80.1%) was used to determine spending cost by different family size. The second quintile is the second lowest income bracket, which is suitable for the majority of families in the affordability scenarios. The SHS reports the average family size in each quintile. The second quintile family size was 1.94.

Step one: determine average household spending per year, per category in second quintile.

Step two: determine average spending per month in second quintile.

Step three: determine average spending per person as follows: Divide the average spending per household on by the average family size of the quintile

Table 8. Estimated Average Monthly Spending on Clothing & Footwear, Personal Care and Household Cleaning Supplies(31)

	Median spending/ year/household	Median spending/ household /month	Median spending /person (divide by family size – 1.94)	Each Additional Person (80.1% of the single person)
Clothing & Footwear	\$1105	\$92.08	\$47.47	\$38.02
Personal Care	\$635	\$52.95	\$27.28	\$21.85
Household Cleaning Supplies	\$170	\$14.17	\$7.30	\$5.85

Step four: Once average spending for one person was determined, a multiplier of 80.1% for each additional person was used. Example: Household Cleaning Supplies: $\$7.30 \times .801 = \5.85 (so for a 5 person household, $7.30 + 5.85 + 5.85 + 5.85 + 5.85 = \30.70)

Table 9. Estimated Average Monthly Spending on Clothing & Footwear, Personal Care and Household Cleaning Supplies for 5, 4 and 1 person households

	Clothing and Footwear	Personal Care	Household Cleaning Supplies
5 person household	\$199.55	\$ 114.68	\$30.70
4 person household	\$161.53	\$ 92.83	\$24.85
1 person household	\$47.47	\$ 27.28	\$7.30

Step five: Apply appropriate CPIs from January to June, 2010. A *cumulative* CPI of -2.5% (multiply by .975) for a five person family = \$29.93/month

Table 10. CPI Component: Clothing and footwear

2010 Affordability Scenarios		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	% change	-2.50%	1.70%	10.20%	1.70%	-5.20%	-6.10%
	SHS Figure						
5 person household	\$199.55	\$194.56	\$197.87	\$218.05	\$221.76	\$210.23	\$197.40
4 person household	\$161.53	\$157.49	\$160.17	\$176.51	\$179.51	\$170.17	\$159.79
1 person household	\$47.47	\$46.28	\$47.07	\$51.87	\$52.75	\$50.01	\$46.96

Table 11. CPI Component: Personal Care

2010 Affordability Scenarios		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	% change	0.80%	-1.00%	1.50%	0.90%	-2.40%	2.10%
	SHS Figure						
5 person household	\$ 114.68	\$115.60	\$114.44	\$116.16	\$117.20	\$114.39	\$116.79
4 person household	\$ 92.83	\$93.57	\$ 92.64	\$94.03	\$94.87	\$92.60	\$ 94.54
1 person household	\$ 27.28	\$27.50	\$27.22	\$27.63	\$27.88	\$ 27.21	\$ 27.78

Table 12. CPI Component: Household Cleaning Supplies

2010 Affordability Scenarios		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	% change	-0.60%	-0.60%	-0.90%	-0.20%	-0.20%	0.00%
	SHS Figure						
5 person household	\$30.70	\$30.52	\$30.33	\$30.06	\$30.00	\$29.94	\$29.94
4 person household	\$24.85	\$24.70	\$24.55	\$24.33	\$24.28	\$24.23	\$24.23
1 person household	\$7.30	\$7.26	\$7.21	\$7.15	\$7.13	\$7.12	\$7.12

Comparability of the Affordability of a Basic Nutritious Food Basket Over Time

Each year that participatory food costing has been conducted, the methods used to calculate net incomes and data on basic expenses used to construct affordability scenarios have been updated. While these changes may limit the ability to make comparisons over time, the updates to the methods have strengthened the validity and reliability of the findings.

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