

A STUDY OF THE COST OF
LIVING IN LABRADOR

CENTRE FOR NEWFOUNDLAND STUDIES

**TOTAL OF 10 PAGES ONLY
MAY BE XEROXED**

(Without Author's Permission)

E. FRANK BUTLER



101156



A STUDY OF THE COST OF LIVING IN LABRADOR

by



E. Frank Butler, B.A.

A Thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts

Department of Economics
Memorial University of Newfoundland

March 1976

St. John's

Newfoundland

ABSTRACT

The primary purpose of this study is to determine the difference in the cost of living between Labrador and St. John's. While constructing a comparative cost of living index for Labrador, it was found that the presence of certain methodological problems in the application of cost of living index number theory required that the results be interpreted with some degree of caution.

The methodology used is a modified Laspeyres formulation and is similar to the one used by Statistics Canada in measuring the cost of living in remote northern areas of Canada.

Difficulties arise because income expenditure patterns are not available for northern communities. As a result, the study had to make use of a St. John's expenditure survey. To the extent that purchasing patterns for St. John's and Labrador communities are similar, the index constructed provides an accurate comparison of prices. If patterns of consumption differ, as they are assumed to do, difficulties arise because we cannot be sure if they differ because of different preference patterns, because of different relative prices, or both. Moreover, the inherent biases in using index numbers will also tend to overstate the true differential between Labrador and St. John's prices.

While the index numbers indicate that the cost of living is approximately 10-12 per cent higher in Labrador than St. John's, the inherent unresolved theoretical problems in index number theory requires that caution be used in interpreting the overall results of the study.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the many individuals and institutions for their assistance in the completion of this study. I owe an especially heavy debt of gratitude to Professor Charles H. Pye, for his patient supervision, his invaluable suggestions and constructive criticisms without which this thesis would not have been possible.

In addition, I would like to express my sincere thanks to Mr. Gordon K. Goundrey for his assistance during the initial stages and the writing of the first draft of this thesis. Mr. H. Segal, Assistant Director, Prices Division, Statistics Canada in Ottawa, and Mr. E.W. Hutchings, Regional Director, Statistics Canada in St. John's, both provided invaluable guidance and greatly needed statistical data. I am also grateful to the Institute of Social and Economic Research and the Royal Commission on Labrador for providing the opportunity and the financial assistance necessary to undertake this study. There are many other people whose names have not been mentioned personally, but who gave considerable help in the writing of this thesis. I offer them my sincere thanks.

Finally, while I have drawn on the knowledge and experience of others, responsibility for the views expressed in this thesis rests entirely with me.

TABLE OF CONTENTS

	PAGE
ABSTRACT	ii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES, MAPS, WORKSHEETS AND FIGURES	vii
INTRODUCTION	ix
CHAPTER	
I. THE THEORY OF THE COST OF LIVING	1
1. Introduction	1
2. Making Cost of Living Comparisons	5
3. The Minimum Budget Method	7
A. The Standard of Living	7
B. Deciding on the Goods and Services to be Included	11
a. Food	11
b. Housing Characteristics	13
c. Medical Care	13
d. Transportation	14
C. Selecting the Prices of these Goods and Services	15
4. Cost of Living Index Numbers	15
A. The Meaning of a Cost of Living Index	16
B. Construction of Cost of Living Index Numbers	17
a. Objective	17
b. The Representative Basket	18
c. Sources of Data	19
d. Choice of Base	19
e. Systems of Weights in an Historical Perspective.	21
f. The Consumer Price Index as a Measure of the Cost of Living	29

CHAPTER	PAGE
5. Choosing the Better Method	34
6. Conclusion	40
II. THE METHODOLOGY:	41
1. Introduction	41
2. Background	42
3. Measurement of the Cost of Living Between Places	45
4. The "Labrador Basket"	47
5. The "Labrador Weighting Pattern"	49
6. Comparability	53
7. Validity of the Findings	55
III. COST OF LIVING DIFFERENTIALS: THE RESULTS OF THE STUDY	57
1. General Findings	57
2. Cost Differentials--Disaggregated Analysis	60
A. Food	60
B. Household Operation	67
C. Clothing	73
D. Transportation	77
E. Health and Personal Care	85
F. Recreation and Reading	88
G. Tobacco and Alcohol	93
IV. AVAILABILITY, CHOICE AND QUALITY CHANGE	96
1. Introduction	96
2. A Discussion of These Problems	97
V. SUMMARY AND CONCLUSIONS	104
BIBLIOGRAPHY	112
APPENDIX A: PRICING SCHEDULE	117
APPENDIX B: EXPLANATORY NOTES TO THE CALCULATIONS	123
APPENDIX C: BREAD BASKET INSTRUCTIONS	125

LIST OF TABLES, MAPS, WORKSHEETS AND FIGURES

TABLES

TABLE	PAGE
II.1. Pattern of Expenditures for Labrador Survey	50
II.2. Section of Labrador Weighting Diagram	52
III.1. Cost of Living Differentials for Labrador	58
III.2. Fuel and Light Indices for Labrador	68
III.3. A Comparison of Gasoline Prices	79

MAPS

MAP

1. Map of Newfoundland and Labrador Showing Communities Visited	43
---	----

WORKSHEETS

WORKSHEET

1. Group Summary and Total Budget Index Calculation	59
2. Food Sub-Group Summary and Food Index Calculation	62
3. Item Summary and Sub-Group (Food) Index Calculation	63
4. Item Summary and Sub-Group (Food) Index Calculation	64

	PAGE
5. Item Summary and Sub-Group (Food) Index Calculation	65
6. Household Operation Sub-Group Summary and Household Operation Index Calculation	70
7. Item Summary and Sub-Group (Household) Index Calculation	71
8. Clothing Sub-Group Summary and Clothing Index Calculation	74
9. Item Summary and Sub-Group (Clothing) Index Calculation	75
10. Transportation Sub-Group Summary and Transportation Index Calculation	81
11. Item Summary and Sub-Group (Transportation) Index Calculation	82
12. Health and Personal Care Sub-Group Summary and Health Care Index Calculation	86
13. Item Summary and Sub-Group (Health and Personal Care) Index Calculation	87
14. Recreation Sub-Group Summary and Recreation Index Calculation	90
15. Item Summary and Sub-Group (Recreation) Index Calculation	91
16. Tobacco and Alcohol Sub-Group Summary and Index Calculation	94
17. Item Summary and Sub-Group (Tobacco and Alcohol) Index Calculation	95

FIGURES

1. Indifference curve analysis of bias in the Laspeyres Price Index	31
---	----

INTRODUCTION

This thesis grew out of research work undertaken for the Royal Commission on Labrador, which attempted to measure the cost of living in Labrador and to compare it with the cost of living in St. John's. In the study, a consumer price index was compiled for six Labrador communities using St. John's as the base, and the information obtained from the index was used as the basis for comparison. The survey of prices, which forms the basis for the construction of the index numbers, was carried out during early 1973.

In applying index number theory to this situation, it was found that the absence of an expenditure survey for Labrador necessitated the use of the available St. John's expenditure survey with appropriate modifications being made to reflect consumption patterns in the Labrador, while at the same time maintaining product comparability between the two areas. However, in applying this methodology it soon became apparent that in areas where living conditions differ widely certain theoretical shortcomings in index number theory, to which satisfactory solutions have not been found, require that the results of the survey be viewed with a moderate degree of caution. The aspects of different living conditions which cause the greatest problems are: non-comparability of consumption patterns (particularly because of climatic, income and

population density differences), non-availability of certain goods consumed in both areas, delays in obtaining goods and quality differences.

Chapter I analyzes the theory of the cost of living, and suggests two different methods which might be used in the assessment of the cost of living between two communities at one point in time. Chapter II endeavours to apply the index number approach to the assessment of the cost of living in Labrador. This chapter also outlines any modifications in the framework deemed necessary to make it useful for the Labrador situation.

Chapter III presents the results of the survey. It gives in detail, the cost of living differentials between St. John's and Labrador, and a general discussion on the results of each main group of the Labrador basket. Chapter IV evaluates the significance of these results in view of the problems that have arisen because of different consumer buying habits, different nutritional standards and the general remoteness of the Labrador area. These problems are the non-availability, limited choice and quality change of goods and services consumed in both places.

Finally, Chapter V attempts a theoretical discussion of these problems and how they affect the validity of the findings. Suggestions are also made as to how the present theory might be improved so that future northern cost of living studies would be more meaningful.

CHAPTER I

THE THEORY OF THE COST OF LIVING

1. Introduction

When most people think of the cost of living, they probably have in mind a money value of some absolute minimum of goods and services for day to day living. These opinions of a minimum are formed through our life experiences, tastes and our incomes.¹ Thus this standard and its cost change from time to time, not only through price changes, but through changes in incomes, customs and consumption patterns of ourselves and others. Although the choices which make up a particular consumption pattern are never exactly the same for any two families or any one family in two or more successive periods, there is an unmistakable similarity in the choices made among families with similar socio-economic backgrounds.² Members of the same community have common

¹Community Council of Greater New York, A Family Budget Standard (New York: Community Council of Greater New York, 1963), p. 1.

²Alfred Marshall brings out this point in his discussions of "desire for variety" and "the adjustment of wants to changes in standards of life"; see, e.g., his chapters on "Wants in Relation to Activities," in Bk. III and "Progress in Relation to Standards of Life," in Bk. VI (Principles of Economics, 8th. ed.; Toronto: MacMillan and Company Ltd., 1920).

motivations and experiences; they are influenced by a need to conform to current ways of doing things and a desire to enjoy what others enjoy.¹

Government surveys² of family income expenditures in Canada, conducted over the last thirty years, have enabled those involved in consumer price research to ascertain the typical choices of consumers over a given time period. As a result of such surveys, problems of regional and even urban-rural differences believed to have stemmed from old cultural patterns are now believed to stem directly from income differentials.³

Margaret Stecker defines "cost of living" as:
 "... retail prices of the goods and services essential at a specified level of living, in more than one community at the same time or in the same community at different times or both, combined with such quantities of each item as represent normal or average consumption at that particular level."⁴
 According to this definition, there is a different cost of living for each different type of family, each ethnic group

¹Community Council of Greater New York, A Family Budget Standard, p. 2.

²Statistics Canada, Prices Division, City Family Expenditure (Ottawa: Queen's Printer, 1961).

³Community Council of Greater New York, A Family Budget Standard, pp. 2-3.

⁴Margaret L. Stecker, Intercity Differences in Cost of Living in March 1935, 39 Cities (Washington: United States Printing Office, 1973), p. IX.

or each city, because of different expenditure patterns.

The problem of designing a cost of living study that would be a normal or average representation of the cost of living of a particularly large group of people is of major concern to the researcher.

There are two broad purposes for which cost of living comparisons can be used. The first and more popular use is to estimate changes in the cost of living over time for one specific consuming unit. For example, cost of living comparisons have been used by many labour unions to criticize existing wage levels and to support arguments for wage increases when a general rise in the level of prices of goods and services has increased the actual cost of living.

Alternatively speaking, cost of living comparisons are used to determine the "real" income of individuals. This is accomplished by reducing money incomes and expenditures to a common level of purchasing power. For example, if between 1972 and 1974 a typical consumer's money income increased from \$4,000 to \$8,000 and the prices of all goods and services exactly doubled in that time, his standard of living would remain the same despite the fact that his money income had doubled. Price increases have exactly offset his increase in income and therefore his purchasing power remains at \$4,000 in terms of 1972. Thus in order to determine whether the standard of living of the typical consumer has increased or decreased, his money income would have to be

converted to constant dollars.¹

The second use of cost of living comparisons is to measure differences in the cost of living between two different places at the same point in time. For example, people may wish to know the difference in the cost of living if they are contemplating moving from one place to another. If the cost of living differs between cities, then families who move to a more expensive area without a change in money income would be worse off. Additional income would be required to bring the level of consumption up to the standard they enjoyed in the less expensive area. This aspect is not only of importance to business firms, governments and other employers who require their employees to be able to move from place to place, especially when these relocations involve moves to relatively isolated areas, but also to individuals wishing to relocate in response to wage differentials.

A cost of living comparison is also useful as the first step in analyzing regional differences in standards of living and as a key issue in the alleviation of disparities among population groups as was done in the preparation of the case for "Term 29."² In that case a comparison was made

¹For further discussion of this topic see Robert D. Mason, Statistical Techniques in Business and Economics (Illinois: Richard D. Irwin Inc., 1970), p. 420.

²A clause in the terms of union of Newfoundland with Canada which was intended to give additional financial assistance to Newfoundland to enable it to provide public services at the levels and standards in the Maritime Provinces without imposing more burdensome taxation, having regard to ability to pay.

of the cost of living between Newfoundland and the Maritimes, suggesting that geographic, climatic and transportation difficulties played a large part in the comparatively higher cost of living. The Government of Newfoundland argued that a "dollar of income in Newfoundland does not buy as much as a dollar of income in the Maritimes."¹

2. Making Cost of Living Comparisons

Having illustrated the meaning and purpose of cost of living studies, the next step is to examine the available techniques and to determine which one would be best suited for a cost of living comparison between Labrador and St. John's.

Some studies of consumer expenditures have used the "Minimum Budget Method" as a means of measuring changes in the cost of living. Although the minimum budget method is not the most accurate procedure for measuring changes in the cost of living, it has certain features that make it an acceptable and useful methodology in special case studies.

The value of the minimum budget method was demonstrated during World War I and the Great Depression, when government agencies in the United States required some minimum measure of the cost of living to help them keep a

¹Government of Newfoundland and Labrador, Report of the Royal Commission for the Preparation of the Case of the Government of Newfoundland for the Revision of Financial Terms of Union, May 1957, p. 118.

constant check on changes in the economy. After the Depression, the minimum budget method was used for other administrative purposes, some of which included: measuring the extent of poverty, measuring progress in removing poverty, and measuring the amount of income sufficient to provide an adequate standard of living. Even today, nutritionists, dietitians and welfare agencies find it a particularly useful method for calculating living allowances and as a basis for recommendations concerning standards of health and decency.

As an alternative to the minimum budget technique, Irving Fisher¹ and Frederick Mills² revised and improved the "Index Number Method" in an attempt to find a more flexible approach to measuring the cost of living and one that would also ensure more meaningful results. It is true that the uses of index numbers have been many since their origin in the 1780's³ and that various formulae derived for calculating index numbers for particular studies often yield different results. The important task, however, is being able to reason why and when certain formulae should be accepted while others rejected.

¹Irving Fisher, The Making of Index Numbers (New York: Hugh Mifflin Co., 1927).

²Frederick Mills, Statistical Method (London: Sir Isaac Pitman and Sons Limited, 1924).

³Wesley Mitchell, The Making of Index Numbers (New York: Sentry Press, 1915), p. 7.

3. The Minimum Budget Method

Measuring the cost of living using the minimum budget method consists of three separate steps: deciding on the standard of living to which the cost of living is to relate, choosing the goods and services to be included in the budget, and ascertaining the prices of these goods in a given market.

A. The Standard of Living

The first requirement is to determine the standard of living to which the cost of living is to relate, because in most societies there are many different standards of living. Determining the standard to be met is no easy task as it reflects individual tastes, preferences and life styles. Rubinov¹ expressed the opinion that the accepted classifications of living standards usually include five fairly recognizable levels: insufficiency, minimum subsistence, health and decency, comfort and luxury. Frequent failure to recognize these various standards of living, and the absence of any clear-cut boundary between the various levels, can result in an element of ambiguity in the final results of a cost of living study.

¹M. Rubinov, "Poverty," Encyclopedia of the Social Sciences, Vol. XII, New York, The MacMillan Company, 1931, p. 285, quoted in Margaret G. Reid, "Distribution of Income and Consumption," in American Income and Its Uses, edited by Elizabeth E. Hoyt (New York: Harper and Brothers, 1954), pp. 173-174.

In the matter of family budgets there can be many definitions of a minimum standard of living. Margaret Stecker, for example, defines a minimum standard as one that "meets the minimum physical needs of food, clothing and shelter to yield a balance sufficient for a small degree of comfort, health and recreation."¹ Definitions of a minimum standard of living can also be related to individual attitudes to the adequacy of income. In North American culture, high incomes and consumption levels are major symbols of prestige and achievement.² Hadley Cantril's study, investigating the attitudes about the adequacy of current weekly incomes of families in the United States, enquired into whether people were satisfied or dissatisfied. The result revealed that "the higher the weekly income, the higher the percentage of people who expressed satisfaction. However, the additional dollars needed by those who expressed dissatisfaction with their present income were found to increase with income. The people with weekly incomes of \$25.00 needed \$16.00 more, while those with a weekly income of \$100.00 needed \$100.00 more."³ At all income levels, therefore, with

¹Margaret Stecker, "Family Budgets and Wages," American Economic Review, Vol. 11 (Wisconsin: 1921), p. 450.

²Margaret G. Reid, "Distribution of Income and Consumption," in American Income and Its Uses, ed. by Elizabeth E. Hoyt (New York: Harper and Brothers, 1954), p. 170.

³Hadley Cantril, "Public Opinion 1935-1946," Princeton: Princeton University Press, 1951, p. 331, quoted in Margaret G. Reid, "Distribution of Income and Consumption," in American

the exception of very high incomes, one might expect dissatisfaction with income received. Ideas on how much income is needed for a minimum subsistence level of living are likely to be related to what the person answering thinks is necessary for himself.

The social and cultural environment also plays an important part in the decision by cost of living researchers to choose a particular minimum standard of living. In this situation, too, judgment as to what is a minimum level of health and decency or minimum subsistence is by no means clear-cut. The economic growth and progress of a country also produces changes in social judgments about what is a minimum subsistence level of living. This is supported by Margaret Reid who suggests that, "former comforts become necessities while luxuries become comforts."¹ Concepts of "bare minimum" and "essential" often change with the growth of scientific knowledge, what becomes of individuals' habits and what the "Jones" have; and these tend to obscure the identification of a particular standard of living.

Around the turn of the century, Booth² and Rowntree³

Income and Its Uses, ed. by Elizabeth B. Hoyt (New York: Harper and Brothers, 1954), p. 170.

¹ Reid, "Distribution of Income and Consumption," in American Income and Its Uses, p. 175.

² Charles Booth, Labour and Life of the People of London (London: Williams and Norgate, 1891).

³ B.S. Rowntree, Human Needs of Labour (London: Thomas Nelson and Sons, 1918).

in England, and Chapin¹ in the United States were among the pioneers in the measurement of the cost of living at the minimum subsistence level. Budgets collected by these and other budget researchers are now described, in the more recent literature, as representative of a bare subsistence level of living, and included only food, fuel, clothing and shelter. These budgets were just above the poverty level with no provision for health or comfort. The necessities of life were provided, but no luxuries or comforts were allowed.

As budgetary studies began to be used in wage negotiations a new concept of a minimum budget standard was needed. The desire to get away from the bare subsistence level of living prompted the introduction of a revised budget which would include certain additional comforts so that the budget would become one of "health and decency" rather than "bare subsistence." Thus the new budget concept put forward in the early 1920's known as a "minimum of comfort" budget,² was based, not on the needs and necessities of a bare subsistence standard of living, but on a higher level of living, which incorporated a new concept of minimum standard of wholesome living and included a moderate degree of comfort and luxury.

¹R.C. Chapin, The Standard of Living of Workingmen's Families in New York City (New York: Charity Publication Committee, 1909).

²Stecker, Family Budgets and Wages, p. 454.

B. Deciding on the Goods and Services to be Included

Decisions about the contents of a budget might be termed the most crucial step in estimating the cost of living using the minimum budget method.¹ This may be so because the goods and services included in the budget have to relate to the uses to which a measurement of the cost of living is to be put.

Scientists and trained technicians have been relied upon considerably to make many of these decisions. Their recommendations, however, have generally been confined to the major consumption categories such as food, housing and medical care. As one can easily imagine, there are as many different budget specifications as there are scientists and technicians. The list of all possible procedures used in selecting items for budgets is beyond the scope of this study. Nevertheless, for illustrative purposes, the methods typically used for various commodity groupings are outlined below.

a. Food

Some food components for a minimum standard of living have been based on low-to-moderate cost food plans. The plans are developed by the U.S. Department of Agriculture from its Household Food Consumption Study,² in accordance with the

¹Reid, "Distribution of Income and Consumption," in American Income and Its Uses, p. 170.

²H.H. Lamale and M.S. Stotz, The Interim City Workers Budget, Monthly Labour Review (Washington: August 1960), p. 791.

nutritional standards recommended by the National Research Council (NRC).

Although knowledge of food nutrition is in a constant process of extension and improvement, the NRC has grouped foods according to their nutritive value and have worked out amounts needed to provide various levels of dietary adequacy.¹ The food budgets used by Margaret Stecker² in compiling minimum budgets were constructed by the Bureau of Home Economics, United States Department of Agriculture. The commodities included in this minimum diet were selected from the monthly labour statistics³ and were believed to provide enough of the different nutrients to cover the requirements for a basic maintenance budget standard while allowing a fair margin of safety.

Nevertheless, even under these recommended nutritional allowances, budgets can differ widely in cost. Factors such as seasonality, quality, quantity purchased, kind of packaging, type of store, market conditions and "sale" prices all influence commodity prices. For this reason, and also the

¹See also a similar practice in, Food and Drug Directorate, Department of National Health and Welfare, Health Protection and Food Laws (Ottawa: Queen's Printer, 1969).

²Margaret Stecker, Quantity Budgets for Basic Maintenance and Emergency Standards of Living. Research Bulletin Series I, No. 21 (Washington: Works Progress Administration, 1936).

³United States Bureau of Labour Statistics, Monthly Labour Review.

reason that housewives will not always purchase the items specified, an estimated "factor of safety"¹ (excess over average need) has to be included in the budget.

b. Housing Characteristics

Housing budgets are normally derived using standard regulations set out in local housing codes and health specifications. For the most part such regulations are concerned with persons per room and selected facilities such as electricity, hot and cold running water and bathroom facilities.

The method generally used in assessing housing for a minimum budget is to set up specifications of minimum adequate housing and obtain prices or rents for such housing. When this is done, it is necessary to assume a maximum and minimum on specifications since there would be many houses that would exceed minimum specifications. When specifications are agreed upon, the dwellings occupied by that group of people whose cost of living is being studied, are examined to see whether they meet the specifications. If they meet this standard, then these dwellings are the ones used in the survey.

c. Medical Care

The amount of medical care needed is determined by the incidence of disease and disability in the population which

¹Stecker, Quantity Budgets, p. 184.

is usually judged by doctors on the basis of experience and records.

The kind of quality of the medical care required by one individual in one year cannot be estimated; but for large population groups, lifetime needs can be predicted. According to Margaret Stecker, a minimum budget for medical care can be made only in terms of general averages,¹ and from these, individual needs are calculated on the basis of a fraction of the group cost.

d. Transportation

The minimum requirements for transportation are specific to each individual family and the average demand for transportation can be estimated only in general terms. In cities with large land areas where residential and shopping areas are scattered, larger outlays on transportation would be necessary compared to more compact urban areas where distances are not so great.

In a budget that measures a basic minimum standard of living, automobiles are not included; hence, necessary transportation requirements have to be calculated in terms of public conveyances. The allowance for transportation in a minimum budget is computed as the sum of average commuting requirements and the average provisions for unspecified transportation needs required in connection with shopping,

¹Ibid., p. 46.

visiting, recreation and medical care.

C. Selecting the Prices of These Goods and Services

This final step in constructing the budget is relatively simple as there are many widely accepted techniques of pricing a market basket of goods and services. Prior to actual field work, decisions have to be made regarding the extent of shopping around for the best buys and purchasing the sale items, which consumers are assumed to do. In the collection of the price data it is necessary, through the establishment of precise specifications regarding quantity, quality and brand names, to ensure that almost identical goods and services are included. Since there are differences in the availability of goods between regions, the pricing of identical goods in all areas is impossible. When this problem arises, substitute goods are usually found to replace the original items.

4. Cost of Living Index Numbers

An alternative to the minimum budget technique is the use of the index number method. The index number approach encounters problems similar to the minimum budget method in formulating a representative consumption bundle and in collecting the appropriate data. However, as a method for measuring changes in the cost of living, it is not only conceptually different from the minimum budget method but it is more theoretically sophisticated.

A. The Meaning of a Cost of Living Index

Irving Fisher defines a cost of living index as a " . . . number which shows the average percentage change of prices from one point of time to another."¹ He says that although most people have a rudimentary idea of a high or low cost of living they have " . . . very little idea of how the height of the high cost or the lowness of the low level is measured."² It is to measure these magnitudes that cost of living index numbers were invented.

From the consumer's point of view, cost of living index numbers can provide information on changes in the general level of prices of goods and services from year to year, and also price level differentials between different locations. Such measures enable the average consumer to realize how much it is costing him to maintain a certain standard of living over time and, if he were to contemplate moving, over space.

In evaluating changes in the cost of living the actual index which is used is a consumer price index. This index however, can provide only an approximation to the true changes or differences in the cost of living, for various reasons. The presence of "biases" in the construction of index numbers can seriously affect the results of a cost of living study.

¹Irving Fisher, The Making of Index Numbers.

²Ibid., p. 3.

Again with interspatial comparisons, problems of non-comparability arise due to differences in such factors as climate, population and levels of income between different regions. In addition, the non-availability of certain goods in one area that are important items to people living in another area also creates problems when making comparisons.

These are some of the problems encountered in attempting meaningful cost of living comparisons especially as it applies to the problems of this study. A more detailed examination of these problems will be undertaken later in the chapter. In order to elucidate these difficulties, attention must first be directed to the methodology of constructing cost of living index numbers.

B. Construction of Cost of Living-Index Numbers

a. Objective

In the construction of an index number, the purpose for which it is required should be clearly defined. This is of the utmost importance as no all-purpose index exists to embrace all possible situations that may arise. Most indexes are of limited and particular use. Thus a cost of living index, for example, would be concerned primarily with retail prices of consumer goods and services, and even then, this interest has to be confined to a specific income-expenditure level because people of different social strata have different expenditure patterns.

b. The Representative Basket

The next step, and probably the most important in the construction of a cost of living index, involves the selection of a representative basket of goods and services. This basket must be indicative of the consumption habits of the particular group of people being studied.

The task of deciding what items are to be included in the index is a difficult one. Clearly, every item cannot be included in the basket. Great care must be taken, therefore, to see that the items chosen are representative of the tastes, customs and consuming habits of the particular class of people being analyzed. For example, expensive jewellery and other luxuries should not be included in a basket if the concern is to measure the cost of living of lower income, working-class people.

A sufficient number of articles must also be chosen to ensure accuracy in analyzing the data. Deciding on the number of items to be included in the consumption basket will depend on the diversity of living standards across socio-economic classes in the area being considered. If a high degree of diversity exists in the area, a more comprehensive list might be needed to ensure meaningful results.¹

¹O.P. Bajpai, Foundations of Statistics (London: Asia Publishing House, 1967), pp. 310-311.

c. Sources of Data

Although the selection of the representative basket is of considerable importance, it is of no value unless we can be assured that the data sources provide information on prices which is accurate, homogeneous and representative. Quotations from regularly published journals or periodic reports from producers and merchants who possess the raw data are usually acceptable. Nevertheless, the authenticity of these data must be established before any real dependence is placed on them.

The most reliable method for securing data is through "on the spot" surveys performed by an investigator or a team of investigators. As in the minimum budget technique, a list of products with precise specifications of quantity and quality has to be provided. Before the survey, assumptions must also be made regarding the extent that consumers shop around for "discounts," "best buys" and "sale prices." If a retail price survey is being done, investigators would be required to visit various supermarkets and independent stores to obtain retail prices directly from the shelves. If this field work is done by experienced investigators, the data secured should have a high degree of reliability.

d. Choice of Base

It is well known that for making intertemporal price level comparisons some year has to be chosen as the base and equated to 100 as a reference point. One serious problem in

making this decision is that the composition of the consumption bundle entering into the formation of the price index will be affected. Essentially there are two approaches in establishing a base period:

(1) Fixed Base

(2) Chain Base.

Using the fixed base method, one year is chosen as a base, the average prices of goods and services during that year are equated to 100, and prices of other years are shown as a percentage of these base year prices.

In contrast to this, the chain index compares only one pair of successive years at a time. Prices of each year are first expressed as a percentage of the preceding year. These percentages are then chained together by successive multiplication to form a chain index. Thus an index for 1970 would be based on 1969, and an index for 1971 would be based on 1970, and so on.¹ Using this method, obsolete commodities may be readily dropped or new ones added. Thus it is relatively easy to make basic revisions in such areas as changes in consumption patterns and quality changes which cannot easily be accomplished using the fixed base index number.

Nevertheless, in index number construction, the fixed base has become the more commonly accepted technique.

¹F.E. Croxton and D.J. Cowden, Applied General Statistics (New Jersey: Prentice-Hall, Inc., 1967), p. 375.

However, in using this method, it might be noted that although a particular base may be satisfactory for a number of years, it becomes less and less meaningful as time passes and it is therefore necessary to update the index from time to time to a more recent period.

In the case of the consumer price index specifically, there are several reasons why the updating of the index base is desirable. First, over time, changes occur in relative prices which, in turn, will lead to changes in the composition of the representative basket. Second, as per capita income changes, the structure of demand for consumer goods and services changes owing to different income elasticities of demand. In addition, scientific progress involves the disappearance of old and obsolete articles and the introduction of new commodities in consumption pattern.

e. Systems of Weights in an Historical Perspective

So far, we have not taken into account the fact that in the computation of price index numbers the individual items of the "basket" vary in importance. The weight attached to a particular commodity in a consumer price index does not reflect its total production, but rather the total consumption by the people in the area being studied. Moreover, for reasons indicated above, the relative importance of commodities in a basket is constantly changing.

The weight attached to a particular commodity is affected also by the units of measure chosen (i.e. ounces, pounds, gallons, etc.). The early literature on index numbers did not consider the problems caused by differences in the units of measure.¹ In the construction of a simple index number the commodity prices for a given consumption bundle, pertaining to a certain date, were added together. The formula used was:

$$SI = \frac{P_1}{P_0} = \frac{\sum_{i=1}^n p_1}{\sum_{i=1}^n p_0}$$

where P_1 = price aggregate at time = "1"

P_0 = price aggregate at time = "0"

p_1 = price of each commodity at time "1"

p_0 = price of each commodity at time "0".

Essentially, price changes were measured by comparing the totals of prices for different dates. In computing this index number, therefore, the influence of each commodity was dependent solely on the price.² However, subsequent theories³ have shown that physical units of measure must be used if the weighting pattern is to reflect accurately the relative importance of the commodities in the consumer basket. Consider, for example, a farm product index which includes such

¹Mitchell, The Making of Index Numbers, p. 7.

²Frederick Mills, Statistical Methods, pp. 194-195.

³Ibid., pp. 205-210.

items as corn, wheat, rice and other related commodities. Using a simple index number, if the price of corn was quoted by the ton, while the other items were quoted by the pound, then the corn would be given more weight than any of the other items no matter how many price quotations were taken. Thus, if the unit of measure is ignored an inadequate system of weights will result. If, for instance, the price of corn were to increase and the price of other commodities to remain unchanged, the resulting price index would yield a measured increase in average prices higher than actually did occur. Herein lies a great source of difficulty in index number construction for which there is no completely satisfactory solution.

A characteristic of the history of index number theory has been a sequence of attempts to resolve the problems associated with weighting systems. The first attempt to master these problems was made by an Italian, G.R. Carli, in 1784. During an investigation into the effects of the discovery of America upon the purchasing power of money, he converted the prices paid for grain, wine and oil in 1750 to percentages of change from their prices in 1500, added the percentages together and divided the sum by three and thus computed the first index number.¹ During the next one hundred years, interest in index numbers declined until the

¹Mitchell, The Making of Index Numbers, p. 7.

great California and Australian gold discoveries touched off new interest in price fluctuations in the latter part of the nineteenth century. The chief interest in index numbers again was to ascertain the effects of the relationship between the rise in prices and the increased production of gold.

The early index numbers, made by private investigators, were often done at irregular intervals using haphazard price quotations. As the usefulness of index numbers became more widely accepted, attempts were made to develop the theoretical foundations and to provide a standardized methodology, given the empirical interest in tracing movements in economic time series.

The first significant step was made in 1864 when Etienne Laspeyres compiled a cost of living index using a weighting system based on quantities consumed in the base period.¹ Using mathematical notation, the Laspeyres Index reads:

$$L = \frac{\sum P_1 Q_0}{\sum P_0 Q_0}$$

where, P_1 = price of item in year (1),
 P_0 = price of item in base year,
 Q_0 = quantity (weight) of item in base year.

¹Mason, Statistical Techniques in Business and Economics, p. 406.

Although Laspeyres had made significant improvements in the construction of index numbers, the weighting system he had created introduced a bias in the measurement of the cost of living. The nature of the source of these biases has been alluded to above; however, a full explanation of the problem will be postponed for the moment.

Ten years later, in 1874, Paasche introduced an alternative formula but similar to that of Laspeyres. He constructed a weighting system using the quantities consumed in the present year rather than the base year. Using the same notation as in the Laspeyres formulation, the Paasche Index would read:

$$P = \frac{\sum P_1 Q_1}{\sum P_0 Q_1}$$

The Paasche formula had the advantage of using current consumption figures as weights and in this way the weighting system would always be up to date. However, this method also posed a bias problem in the measurement of the cost of living. In the Paasche formula, the sources of the bias are identical to those of the Laspeyres price index, but, as it turns out, the bias runs in the opposite direction.

Both Paasche and Laspeyres made significant improvements in the construction of price index numbers even though they failed to deal effectively with the problem of biases. Although the Laspeyres and Paasche formulae are the most commonly used today, their index numbers can give only a

close approximation to the true cost of living.

Around the year 1890, two British economists, Marshall and Edgeworth, independently proposed yet another formulation which provided a compromise between the known biases of the Paasche and Laspeyres index formulae. The Marshall-Edgeworth formula used the quantities (weights) of both the base year and the current year; in this way it had no general bias in any known direction.¹ Using the above notation the formula reads:

$$M-E = \frac{\sum P_1(Q_0 + Q_1)}{\sum P_0(Q_0 + Q_1)}$$

The introduction of this formula marked an important step in the history of index numbers because it represented one of the first serious attempts to deal with the problem of biases in the construction of cost of living index numbers.

As previously mentioned, the greatest contribution to the improvement of index numbers was made between 1920 and 1930 by Frederick Mills and Irving Fisher. Frederick Mills' work was concerned with the value and purposes of various kinds of index numbers used in measuring price movement. Mills suggested a variety of methods for the construction of index numbers and gave solutions to many of the technical problems involved such as: (1) - averaging price variations,

¹Croxton and Cowden, Applied General Statistics, p. 357.

(2) weighting of index numbers, and (3) the selection of representative samples.

Irving Fisher, through extensive, painstaking tests of different formulae used for index numbers, proved that several methods in common use were terribly inaccurate. One of the main conclusions of his book was that the best form of general purpose index numbers was that which he devised and termed the Ideal Index.¹ However, Fisher's Ideal Index was, in reality, very similar to the Marshall-Edgeworth formula. Both index number methodologies combined the weights of the base year and the given year in its formula.

While the Marshall-Edgeworth index used an arithmetic average of Paasche and Laspeyres weights, the Fisher "Ideal" index was a geometric mean (average) of the Paasche and Laspeyres formulae. The mean was found by taking the square root of the product of the two formulae. It had the mathematical notation:

$$I = \sqrt{\frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times \frac{\sum P_1 Q_1}{\sum P_0 Q_1}}$$

Fisher praised this index highly because it was the only formula which could meet the factor-reversal and time-reversal tests² and was relatively free of weighting bias.

¹Fisher, The Making of Index Numbers, p. 62.

²Ibid.

Yet Fisher's claims for his ideal index were vigorously criticized and, as a result, there appeared a number of writings endorsing as well as opposing his views. For example, Warren M. Persons¹ wrote an article in which he suggested that it was the best single index number for general level of prices, yet he reserved some judgment as to its limitations.

Both the Fisher Ideal and the Marshall-Edgeworth formulae combine the best characteristics of the Paasche and Laspeyres weighting systems while, at the same time, attempting to deal with the problem of biases in cost-of living index numbers. When these formulae are used in computing a price index, it is also possible to take into consideration changes in the demand for and the consumption of goods and services. However, as with the Paasche formula, it is often impractical for standard survey practices, not only because of the time and effort required to compile the index, but also because it would be necessary to obtain new weights regularly if a high level of accuracy were required. It is primarily for these reasons, therefore, that the Laspeyres Index, otherwise known as the aggregative expenditure index, has become the generally accepted formula for index number construction and the one used by Statistics Canada in the

¹ Warren M. Persons, "Fisher's Formula for Index Numbers," Review of Economic Statistics, Vol. III (1921), p. 105.

Canadian Consumer Price Index.

f. The Consumer Price Index as a Measure of
the Cost of Living

In order to measure price level changes of goods and services, an assumption has to be made about the pattern of goods consumed by a typical person or family group in Canada. This is usually done by an expenditure survey of a representative group of people in the survey area. Statistics Canada periodically carries out surveys of spending patterns in all major cities in Canada, mainly for use in cost of living studies. Information on spending patterns is compiled for a number of income ranges in each city. From these tables a "weight factor" is assigned to each item which indicates the financial importance of that item with respect to the whole bundle of goods.¹ Index numbers are calculated then using the appropriate formula and the assigned weights.

Since the Laspeyres Index provides the methodological foundation for the consumer price index, it is necessary to discuss, in some detail, the bias problem. Specifically, the problem results from using the consumer price index as a measure of the cost of living. As will be demonstrated, the consumer price index will overstate changes in the cost of living and, at best, can provide only an approximate measure.

¹For further information on Expenditure Patterns see, Statistics Canada, Urban Family Expenditure, 1964, Pub. No. 62-527 (Ottawa: Queen's Printer, 1968).

the cost of living change.

The nature of the bias problem emerges because consumer choices are dependent on relative prices which change over time.¹ In response to this, optimum consumer behaviour will involve commodity substitution. However, the Laspeyres Index is constructed using a fixed consumption bundle and this is where the source of the upward bias originates when using a consumer price index to measure changes in the cost of living.

The problem of bias in the Laspeyres price index and consequent measures of changes in the cost of living can be demonstrated by using conventional indifference theory of consumer behaviour. The basic question is: given an individual's indifference curve $\bar{U}$ (i.e., a certain level of welfare) in Figure 1, is the money income required in a given year (t_1) greater than, equal to or less than the money income required in the base year (t_0) where both money incomes leave the consumer on the same indifference curve, after allowing for commodity substitution in response to relative price change?

Assuming two commodities X and Y, and given their money prices for year (t_0), the amount of money income M_0 (see Figure 1) required in the base year with

¹For additional information concerning index numbers and indifference curve theory see George J. Stigler, The Theory of Price (New York: The Macmillan Company, 1950), p. 82; and William S. Vickrey, Microstatics (New York: Harcourt, Brace and World, Inc., 1964), p. 76.

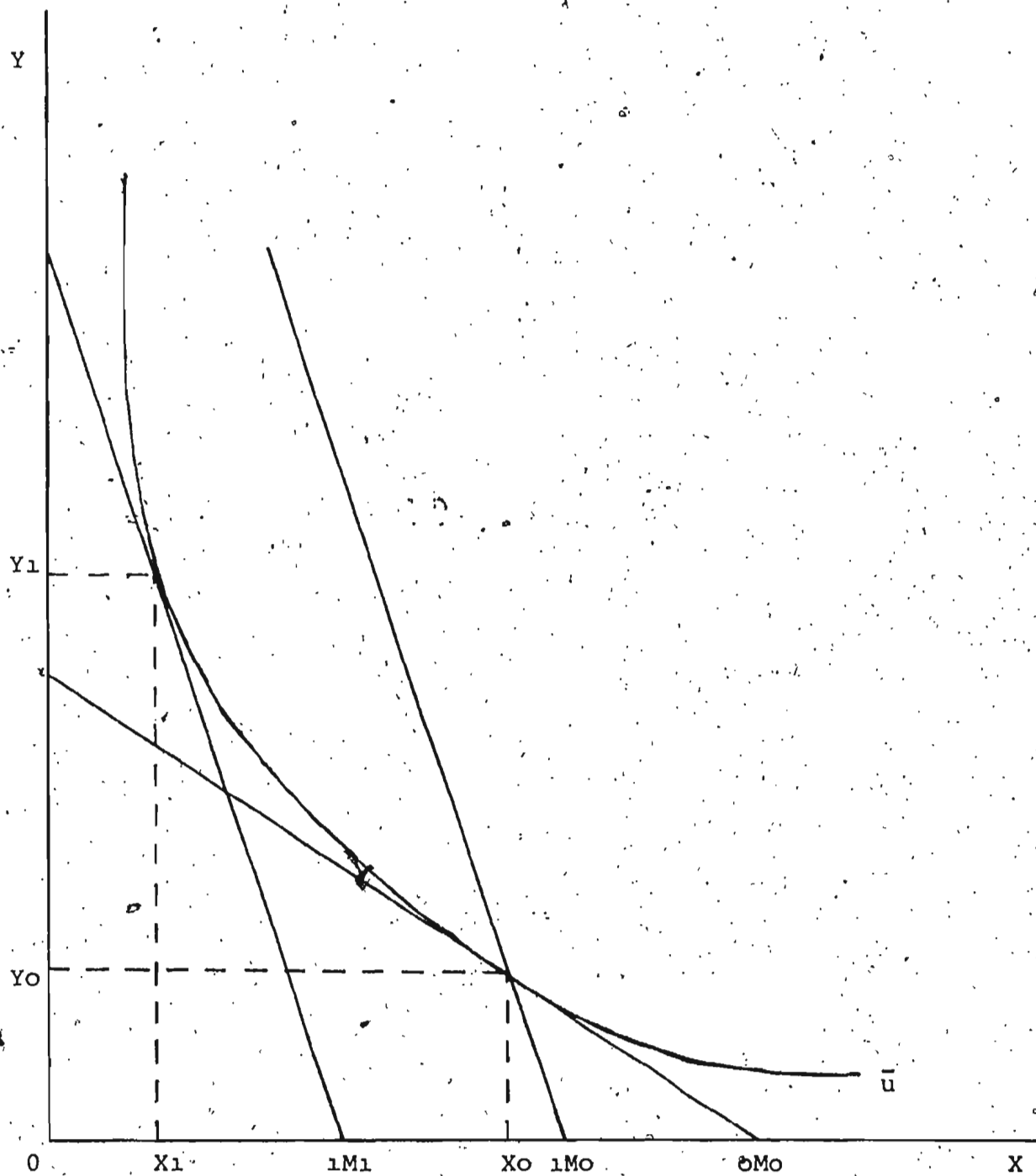


Figure 1. Indifference curve analysis of bias in the Laspeyres Price Index.

base year quantities which puts the consumer on indifference curve $\bar{U}$ is given as:

$$P_{x0}X_0 + P_{y0}Y_0 = {}^0M_0 \quad (\bar{U})$$

If from base year (t_0) to given year (t_1) relative prices change, optimum consumer choice will likely lead to commodity substitution. That is, consumers can be anticipated to shift some of their purchases to those items showing the lowest proportionate price rise, or alternatively, to those commodities which show a relative price decrease.

Now, to derive the true change in the cost of living, the money income required in the given year (t_1) to have the consumer on the same indifference curve ($\bar{U}$) as in the base year (t_0) (i.e., have him no better or no worse off) allowing for relative price changes and commodity substitution would be given as:

$$P_{x1}X_1 + P_{y1}Y_1 = {}^1M_1$$

Therefore, this true or ideal index would be given as:

$$T = \frac{P_{x1}X_1 + P_{y1}Y_1}{P_{x0}X_0 + P_{y0}Y_0} = \frac{{}^1M_1}{{}^0M_0}$$

or writing in summation:

$$T = \frac{\sum P_1 Q_1}{\sum P_0 Q_0} = \frac{{}^1M_1}{{}^0M_0}$$

Now the Laspeyres Index is:

$$L = \frac{\sum P_1 Q_0}{\sum P_0 Q_0}$$

which uses base year quantities when comparing given year prices and base year prices. With reference to Figure 1, the index is expressed as:

$$L = \frac{P_{x1} X_0 + P_{y1} Y_0}{P_{x0} X_0 + P_{y0} Y_0} = \frac{I_{00}^M}{I_{00}^M}$$

Unlike the ideal or true index, the Laspeyres Index does not make allowance for commodity substitution, consideration is not given to the fact that the consumer may substitute certain goods when relative prices change along with absolute (money) prices in order for him to maintain the same level of welfare. Therefore:

$$I_{00}^M > I_{01}^M$$

and since I_{00}^M is a common base, $L > T$; L imparts an upward bias to the measured change in the cost of living, i.e., the change in money income required to keep the consumer at the same level of welfare. Since the Consumer Price Index uses a fixed base system of weights of the Laspeyres type, it will tend to overstate the cost of living for a representative household.

The Paasche formula which uses current year weights, also has a bias problem similar to that of the Laspeyres. The Paasche Index does not allow for commodity substitution which the average consumer is assumed to do if met with a relative or absolute price change. However, because current year weights are used the index number will impart a

downward rather than an upward bias in the cost of living.

The theoretical bias in the Paasche Index can likewise be shown using indifference curve theory. However, detailed discussion of the Paasche Index will be foregone here since this thesis is concerned with the Laspeyres Index, the formula commonly used today in the application of index numbers to cost of living studies.

5. Choosing the Better Methodology

In this chapter, two methodologies for measuring changes in the cost of living have been discussed. This chapter has also attempted to present the problems associated with using these methodologies and the problems that arise in interpreting the results of a cost of living study. Nevertheless, these are the generally accepted techniques for cost of living studies and a choice has to be made on the methodology best suited to serve the purpose of this thesis, namely, an interspatial comparison of costs of living between two regions in the Newfoundland economy.

Using the index number method for measuring differences in the cost of living between St. John's and Labrador can result in problems additional to the inherent problem of biases. Questions concerning comparability, availability of goods and services and the differences in the quality of goods and services create further difficulties. Moreover, in contrast with the conventional theoretical

framework which assumes a fixed and invariant utility surface for a single consuming household, a study dealing with interspatial comparisons of the cost of living runs into the problem of non-comparability of consumption patterns because of climatic, income and population differences, to say nothing of the problems of interpersonal comparisons of welfare. There is no completely satisfactory means of treating these problems within the scope of index number theory. Nevertheless, it is under such theoretical limitations such as discussed above that cost of living studies are conducted and the validity of index numbers are judged.

(1) In isolated and inaccessible areas the restriction on the range of available goods consequently requires the incorporation of substitute goods in cost of living comparisons when items cannot be found which are identical to those in the region where the range of consumer choice is comparatively wider. In selecting items which are not good substitutes, the index numbers may not adequately reflect the differences in the cost of living. If a large number of substitute items have to be selected, it may become impossible for the cost of living survey to provide meaningful conclusions.

(2) Quality change occurs when a particular good or service undergoes a change in one or more of its basic characteristics. In the Canadian Consumer Price Index,

quality change is handled by assuming that an improvement in a particular good, for example, is equivalent to an absolute price reduction in that good.¹ It has been realized in recent years, however, that this method of accounting for quality change is less than satisfactory and that a more suitable method of assessing quality change is necessary if more accurate cost of living studies are to be made. Contributions to improving the measurement of quality change have been made by Griliches² and Fisher and Shell.³

(3) In interspatial cost of living studies, differences in tastes and preferences of consumers between the regions being compared is a problem of particular importance when compiling the representative basket of goods and services because of differences in consumer buying habits, geographic location and climate of the area. In an effort to overcome these problems, cost of living researchers have attempted to incorporate these differences in consumption patterns by using an expenditure survey in the particular city in which the cost of living is being measured, rather than in the

¹Prices Division, Statistics Canada, "The Measurement of Comparative Costliness in Cities of Different Regions or Countries" (unpublished paper, Statistics Canada, 1970).

²Zvi Griliches, Price Index and Quality Change (Massachusetts: Harvard University Press, 1971).

³F.M. Fisher and K. Shell, The Economic Theory of Price Indices (New York: Academic Press, 1972).

base city which is the standard practice.¹ From such a survey, patterns of consumption in the region are determined, and the goods and services chosen for the "basket" are selected on this basis. Unfortunately, problems arise when expenditure surveys are not available for all cities or regions in Canada. As an alternative, the expenditure survey for the "base" region is used as the reference pattern of consumer expenditure and modifications are made in this pattern to make it resemble more closely the expenditure pattern of the region being studied. Since the consumption patterns of the regions are not identical, conclusions about differences in the cost of living have to be made with considerable caution.

The minimum budget method of measuring changes in the cost of living is not without problems either. Although the minimum budget approach does not have the bias problems associated with index numbers, both methods do share the difficulties associated with differences in consumer taste and product quality, as well as problems of limited choices and the unavailability of certain types of goods and services. A brief explanation of these problems and the effects they have on the results of the cost of living studies was given in the preceding pages.

¹Prices Division, Statistics Canada, The Measurement of Comparative Costliness in Cities of Different Regions or Countries.

In addition to these problems, however, the minimum budget method has other limitations. Margaret Stecker states that the minimum budget method can be expected to give accurate results only when the method is applied under "ideal" conditions and suggests several reasons for her point of view. First, budget makers often run the risk of selecting a minimum budget of comfort and decency that is considerably above what could be considered a fair minimum. They take into account, not conditions that actually prevail but rather those that might exist under ideal conditions. Consequently, they do not measure the actual cost of living but only what would be the cost if it were possible to obtain all the items in a budget which was interpreted as a budget providing a minimum standard of health and decency.¹

By comparison, the index number method does not run this risk. Using a pattern of consumer expenditures that most closely approximates the community being studied ensures that only the most suitable items are selected for the representative basket.

A second problem suggested by Margaret Stecker, concerns the "indiscriminate application of budgets collected in one locality and used in a measure of the standard or cost of living in another."² It is implied in her article

¹Stecker, Family Budgets and Wages, p. 452.

²Ibid., p. 453.

that the budget method, used for intertemporal comparisons, will result in inaccurate conclusions for interspatial comparisons. She warned that "with such differences in price changes between cities, any general estimate of increase in the cost of living applied unguardedly to specific localities may give a very erroneous picture of the actual cost of living." She summarizes by saying, "they [budgets] were not intended for use in any community other than that in which they were collected."¹

As previously mentioned, most societies have many levels and standards of living which differ on the basis of kind, quantity and quality of consumer goods used. Margaret Reid suggests that the absence of clear-cut boundaries between levels is a problem which theorists are faced with in determining a minimum cost of living budget.² Moreover, judgments as to what is a poverty level, or a level of health and decency is by no means fixed either. Ideas as to what standard of living can be considered a bare minimum, essential or satisfactory is dependent on consumer habits and changes in social judgment. Defining a specific standard of living, therefore, is at best a vague proposition; and unless the standard of living is explained prior to the selection of the goods and services for the minimum budget,

¹Ibid., pp. 455-456.

²Margaret Reid, Distribution of Income and Consumption, p. 173.

the results of the survey may also be vague and inconsistent.

6. Conclusion

The limitations of both the index number method and the minimum budget method have been outlined above. The minimum budget method has been shown to be useful only for intertemporal cost of living comparisons because the inherent construction of the budget does not take into consideration differences in consumer buying habits that would exist in an interspatial cost of living study.¹ A minimum budget, once compiled, is not intended for use in any community other than the community for which it was made. By comparison, the construction of the index number allows the consumption pattern to undergo changes (i.e. adding or deleting items to the basket, substituting alternative goods and services, etc.) without invalidating the results of the survey.

Finally, the index number method offers more versatility in that it can be applied to intertemporal and interspatial cost of living comparisons. Since this study deals with an assessment of the cost of living between two different locations at one particular point in time, the minimum budget method is not suitable for the task at hand. Consequently, the index number approach, with its limitations, provides the appropriate methodology for this study.

¹M. Stecker, Family Budgets and Wages, p. 456.

CHAPTER II

THE METHODOLOGY

1. Introduction

The generally accepted framework for measuring the cost of living in urban Canadian communities, outlined in the previous chapter, would give erroneous results if applied, in its purest form, to northern communities which are characterized by severe climates, vast distance, scattered populations and limited means of transportation. Chapter I outlined the pure theory of the cost of living and suggested two different theoretical approaches for measuring changes in the cost of living between northern and southern communities. These are: the minimum budget method which has been used mainly by Margaret Stecker in her pricing surveys for the American Government, and the index number method which has ultimately acquired wider acceptance and recognition through its use in the consumer price index.

In keeping with the thesis objective, this chapter will endeavour to apply the index number approach to an authentic situation. In using this technique for cost of living comparisons between northern communities and a southern urban area, it was necessary to make certain modifications to the theory. This chapter will show in detail how this

framework was modified for application to a study of the difference in the cost of living between six Labrador communities and St. John's.

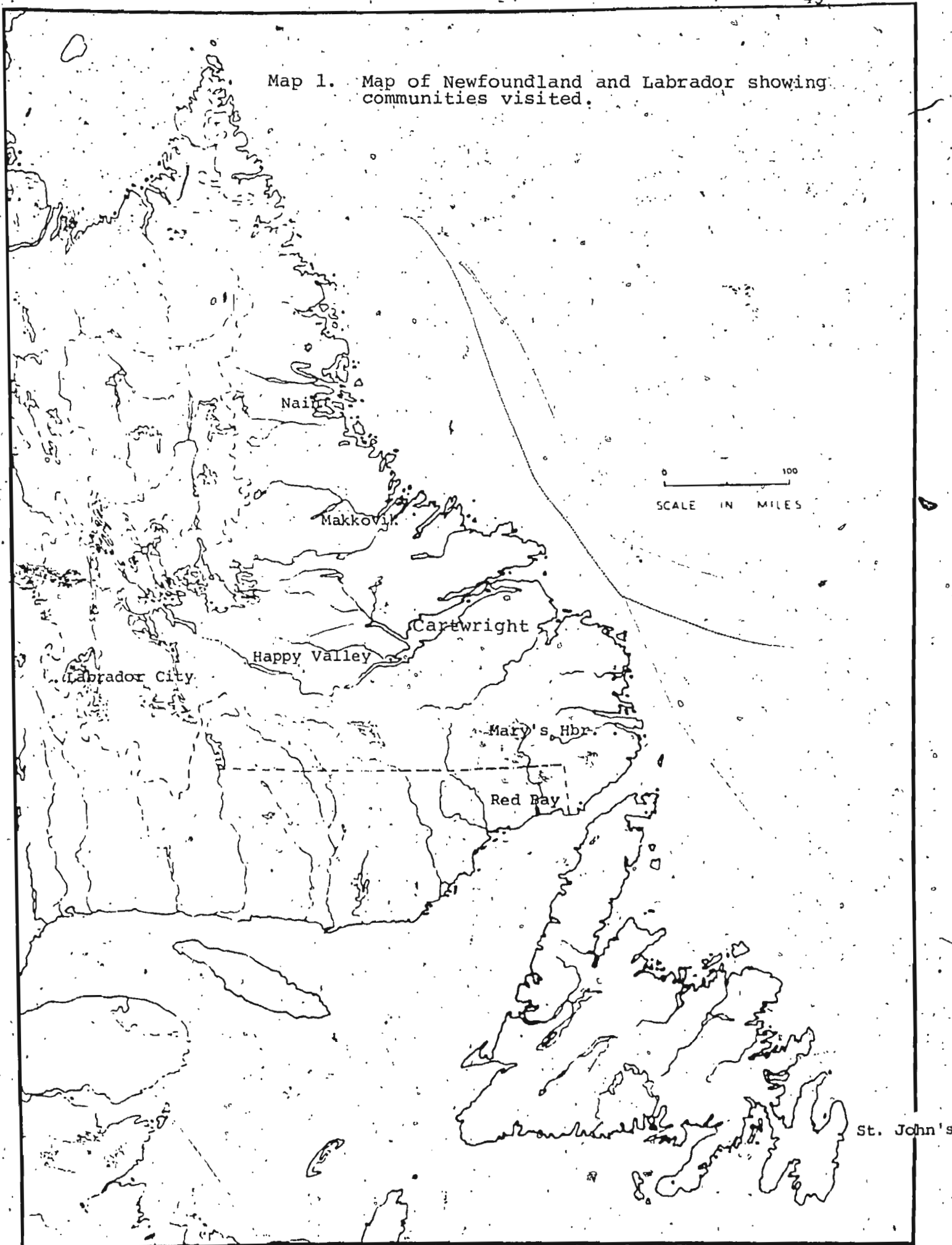
2. Background

The six communities were selected on the basis of size, population and location, and classified as urban or coastal. The urban centres surveyed were: first, Labrador City-Wabush area, comprising some 11,000 people and situated in Western Labrador; second, Happy Valley, which has a population of 1,600 people and is centrally located in Labrador. Thus, some 12,600 people or 45 per cent of the 1971 census population in Labrador were included in the urban communities.

The coastal communities surveyed were: Makkovik, population 292; Cartwright, population 752; Mary's Harbour, where no official population statistics were available but the approximate population is 450; and Red Bay, whose population is approximately 400.

To make the results easier to compare the communities north of Hamilton Inlet are classed as northern coastal communities and those south of Hamilton Inlet are classed as southern coastal communities. The former includes Nain and Makkovik while Cartwright, Mary's Harbour and Red Bay are considered southern coastal communities. The map shown on the following page illustrates the location of the communities

Map 1. Map of Newfoundland and Labrador showing communities visited.



in Labrador which were covered in the survey of prices.

It was originally planned to include Nain in the survey but weather conditions prevented a visit to that community in the time available. It was reliably reported, however, that a survey of Nain and Makkovik would reflect similar prices of consumer goods as the communities on the Northern Labrador coast are serviced by Provincial Government owned and operated NLSD¹ stores. These stores are run on a non-profit basis and both investigators from Statistics Canada and personnel from the NLSD store in Makkovik reported that there would be little, if any, differences in prices between Nain and Makkovik. The stores on the southern Labrador coast, that is, south of Hamilton Inlet, are privately owned and there are no government stores in any of these communities.

Statistics Canada regularly publishes a monthly review of retail prices across Canada and a consumer price index. Conceptually, the published Canadian Consumer Price Index is concerned with changes in prices over time rather than differences in cost of living between two centres at the same point in time. Thus, the basic purpose of the consumer price index is to show by how much the general level of consumer prices has risen or fallen over time. It does not show whether prices are lower or higher in one place than

¹Northern Labrador Services Depot.

another and therefore cannot measure differences in the cost of living between centres.

However, Statistics Canada does carry out regular surveys of differentials in the cost of living among the principal urban centres of the country.¹ What is perhaps less conspicuous is that it also conducts surveys to measure differentials in certain elements of living costs encountered by Federal Government employees when posted in the more remote northern parts of Canada. Statistics Canada also attempts to measure differences in living costs between Canada and a large number of cities in other countries. The main purpose of both these surveys is to determine allowances for the additional expenses of employees.² In remote northern comparisons a base city closest to the isolated post is used; in international comparisons, Ottawa is used as the base point. These two particular kinds of survey are mentioned because the methods used in this study of the cost of living in Labrador were adapted from those used by Statistics Canada.

3. Measurement of the Cost of Living Between Places

The measurement of the differences in the cost of living between places requires two fundamental components:

¹Statistics Canada, Prices and Price Indices (Ottawa: Queen's Printer, 1969).

²Prices Division, Statistics Canada, Measurement of Comparative Costliness in Cities of Different Regions or Countries.

- (1) the pattern of consumer expenditure in each of the areas being surveyed,
- (2) the prices of the goods and services bought in these areas.

Statistics Canada periodically carries out surveys of the spending patterns of all major cities in Canada. These patterns are compiled for a number of income ranges in each city, including St. John's.¹ For our purposes it would be desirable to have an actual Labrador expenditure pattern to compare the cost of living in Labrador with St. John's. Such expenditure data, however, are not available. Indeed, this problem obtains generally in Canada where the Federal Government undertakes to calculate isolation allowances; the measurement of cost of living differentials between the remote northern communities and the reference urban centre are based on a modified base city-expenditure pattern.

Statistics Canada has not yet extended its surveys to include the northern regions of Canada as there are serious conceptual problems involved. A discussion of these problems will be deferred to a later chapter. Nevertheless, it is possible to proceed under the assumption that the available St. John's expenditure pattern with some minor modifications, is similar to what might exist in Labrador.

¹Statistics Canada, Urban Family Expenditure, Pub. No. 62-527.

However, it must be realized that there will be differences in expenditure patterns between Labrador and St. John's and even between the urban and coastal areas of Labrador. Consumer's tastes and preferences for certain goods vary among these centres. To account for this it was necessary to alter the expenditure pattern in certain instances to reflect more closely the consumption habits of the Labrador in order to strengthen the validity of the results of the study.

The second component in assessing comparative cost differentials is the pricing of the items purchased in these various communities. Statistics Canada, in constructing the Consumer Price Index, regularly prices between 350 and 400 items in their "consumer basket" of goods and services. The "basket" is compiled from the items that represent the most frequent consumer purchases as revealed through the surveys of consumer expenditures. The index is calculated by applying these prices to a system of weights which show the relative importance of each item in the total consumption expenditure.¹

4. The "Labrador Basket"

Although essentially the same weighting scheme employed by Statistics Canada is used in this study, the number of

¹Statistics Canada, The Consumer Price Index, Pub. No. 62-502 (Ottawa: Queen's Printer, 1957).

commodities is somewhat smaller. It was decided to price just over 150 of the 350-400 items regularly priced in the Consumer Price Index basket. The basket items were selected from the 1969 Food Expenditure Survey¹ and the 1969 Detailed Average Expenditure Survey² for St. John's. Discretion was exercised here to ensure selection of those items which:

- (1) would have more significance in Labrador than St. John's, e.g., heavier winter clothing,
- (2) have the greatest importance of "weight" as revealed in the available expenditure pattern,
- (3) are of a kind that are comparable and readily available in Labrador.

A copy of the Survey Pricing Schedule, which includes all items in the Labrador basket, is set out in Appendix A.

This basket does not differ markedly from the St. John's basket for 1969. Ideally, it would be desirable to show the comparison in tabular form. This, however, could not be done owing to the confidentiality of the St. John's data source.

There are some notable deletions from the St. John's basket. For example, it was decided to exclude restaurant

¹St. John's Food Expenditure Survey for incomes averaging \$6,800 per year. This was unpublished computer print-out from Prices Division, Statistics Canada, Ottawa.

²Detailed Average Expenditure for St. John's - Table 01A. This was unpublished print-out from Prices Division, Statistics Canada, Ottawa.

meals and automobile purchases from the basket as these items are generally not available in Labrador. In addition, it was necessary to omit shelter from the basket as the conceptual and practical problems involved in making an acceptable comparison would require an immense research effort. Some of the problems involved in attempting to achieve comparability for shelter include:

- (1) purpose of the house,
- (2) style of house,
- (3) actual square foot living area,
- (4) cost of construction and materials,
- (5) cost of heating house (BTU's) in a given place and time period.

In Labrador, where there is so much diversity in house construction and materials, a valid cost differential would be extremely difficult to obtain. As for restaurant eating and automobile purchases, it is impossible to measure a differential on the coast because these items are not available at all. Meanwhile, it was thought that the other elements of the budget would give adequate coverage for the purpose of this study.

5. The "Labrador Weighting Pattern"

As previously mentioned, the weighting pattern for this survey was selected from the most recent expenditure survey of St. John's, carried out in 1969. Table II.1

describes the pattern of expenditures used in the Labrador survey.

TABLE II.1
PATTERN OF EXPENDITURE FOR LABRADOR SURVEY

Class of Expenditure	Percentage Distribution of Total Expenditure
Food	31.92%
Household Operation	20.38%
Clothing	14.56%
Transportation	13.47%
Health and Personal Care	5.49%
Recreation and Reading	6.48%
Tobacco and Alcohol	7.70%
All Items	100.0%

For those items not included in the basket, it was assumed that their prices behaved in a manner similar to those of the items in the same group. To account for the weights for the unused items a statistical technique known as "imputation" was used, a technique used also by Statistics Canada in their index calculations. It was necessary to use imputation frequently in this study because of time and cost considerations. The effects on the validity, however, is felt to be relatively minor. More will be said

concerning this technique in the next chapter.

The international cost of living comparisons done by Statistics Canada were mentioned in the introduction of this chapter, and it was noted that methods of constructing these index numbers were similar to those used for northern allowances. But there is one important difference in the procedure for calculating the index numbers for international comparisons. Instead of having all items in the basket add up to 100 as in the Canadian Consumer Price Index, the international cost of living comparison has the importance or "weight" of each sub-group and main group remain relatively independent of each other. In this way, all items in each sub-group add up to 100; all sub-groups in each main group add up to 100; and all main groups in the total budget add up to 100.¹ This technique was applied in establishing the Labrador weighting system.

A section of the weighting diagram is shown in Table II.2. This shows the main group--food and its percentage weight (31.92 per cent); the sub-groups and respective weights that make up the food section; and the items and respective weights that make up just one of the sub-groups--dairy. This is easily accomplished by converting the individual weights of each item in a particular sub-group to a percentage of the total weight of that

¹See also, Kali S. Banerjee, Cost of Living Index Numbers (New York: Marcel Dekker, Inc., 1975), p. 14.

TABLE II.2
SECTION OF LABRADOR WEIGHTING DIAGRAM

Main Group	Sub-groups (for food only)		Items (for dairy only)	
Food (31.92%)	(Dairy	19.30	(Fresh Milk	24.20
	(Cereal	13.30	(Evap. Milk	16.60
	(Meat	36.23	(Pow. Milk	3.14
	(Miscellaneous	14.68	(Coffee Creamer	2.12
	(Veg. Fresh	7.48	(Margarine	12.75
	(Veg. Canned	3.33	(Butter	3.78
	(Fruit Canned	3.72	(Cheese	9.79
	(Frozen	1.82	(Ice Cream	7.02
			(Eggs	20.51
		100.00		100.00

sub-group. And the total weight of each sub-group is converted to a percentage of the total weight of the particular main group.

The complete weighting system can be seen from the work sheets in Chapter III. There is one advantage in using this system instead of the standard procedure of the Consumer Price Index. In Labrador, where there is such a diversity in spending patterns and buying habits, questions of comparability and availability of goods and services become very important. Therefore, in the planning stages of a consumer basket, no matter how well one attempts to anticipate the availability of certain goods and services, there will be some items which will not be available or for which substitute goods cannot be found. By using this method any necessary changes can be made without having to alter the whole budget. For example, if one item is not available in Labrador then it can be deleted from the budget, and the residual weight redistributed or imputed within the particular sub-group to which the item belongs. It is only necessary, then, to adjust the percentages of that sub-group; it will not affect any other part of the budget.

6. Comparability

Before proceeding to the results of the measurement, it will be useful to comment briefly on the procedures used and problems encountered in achieving a satisfactory level

of comparability of Labrador consumption patterns with St. John's.

Visits to the six Labrador communities indicated that a satisfactory range of goods and services was available to residents in the local store or through catalogue mail order service. This survey, however, was done during the months of January and February, 1973--a time when warehouses are still relatively well stocked and most consumer goods are readily available. During the months of May and June there are often reports of food shortages on the coast. Nevertheless, the people from these communities who were interviewed did not admit that any really serious situation had occurred in the last few years. That is not to say there are no shortages of supplies during the year. They do reportedly run short of certain food items, especially fresh vegetables in the spring and early summer.

Using Statistics Canada's specifications, the prices in Labrador and St. John's were compared on the basis of brand name, quantity and quality. Where identical items were unobtainable, substitute goods were selected. As mentioned earlier, it was necessary to make adjustments in the weighting diagram to reflect the additional importance of certain items in Labrador. For example, weight adjustments were required to reflect the unavailability of fresh milk in the coastal communities and thereby increasing the

importance of powdered milk. Wherever other such adjustments were made, they are noted in the next chapter.

7. - Validity of the Findings

The scope of this study was quite extensive. The survey covered St. John's and six Labrador communities considered to be representative of all Labrador. In terms of consumer expenditure, the areas covered were also quite extensive-- food, household operation, clothing, transportation, health and personal care, recreation and reading, and tobacco and alcohol. However, owing to time limitations, it was necessary to condense some of the detail. In pricing the Labrador basket it would have been ideal to make price surveys in a number of stores in each centre in order to ensure a good representation of prices for each item. Owing to shortage of time, the survey was limited to only one store in each Labrador community. This was not an unreasonable restriction for coastal communities since residents are typically restricted to one main store where most of the people made their purchases.

The survey was done during the months of January and February, 1973. It is realized that these were not the best months for collecting the data and that allowance could not be made for seasonal variations in prices and seasonal availability of certain goods. Supplies are good during the winter months, but during early summer there are shortages

in certain food items. Some community representatives have admitted that when some stores are running low on certain items, they have been known to increase the price of these particular items.

In summary, the methods and procedures used by Statistics Canada in comparing living costs in remote locations in Canada were followed as closely as possible. The adoption of these procedures, given the limitations of the survey data, provide a satisfactory method for measuring the cost of living in Labrador.

CHAPTER III

COST OF LIVING DIFFERENTIALS:

THE RESULTS OF THE STUDY

1. General Findings

This chapter presents the results of the survey. It discusses in detail cost of living differentials for Labrador, followed by general comments on the results for each main group in the Labrador basket. The broad conclusions of the study indicate that the cost of living is approximately 10-12 per cent higher in Labrador than St. John's. The results are shown in Table III.1, which uses St. John's as the base.

Although this may be the overall conclusion, a greater insight might be gained by viewing the various groups that comprise the index (see Work Sheet No. 1). The groups which show high indices are those of transportation and household operation. Generally, the other categories, including food and clothing, have indices which tend to be lower than the overall index noted above. Owing to the marked differences between these groups, it would be instructive to examine each group individually, in an attempt to ascertain the apparent price disparities measured by this study.

TABLE III.1
COST OF LIVING DIFFERENTIALS FOR LABRADOR

Group	St. John's	Lab. City	Happy Valley	Mak- koyik	Cart- wright	Mary's Harbour	Red Bay
Food	100	106	116	93	107	100	109
Household Operation	100	102	112	142	122	126	123
Clothing	100	100	100	100	100	100	100
Transportation	100	132	114	128	135	136	126
Health and Personal Care	100	110	117	107	110	114	91
Recreation and Reading	100	107	100	97	104	104	103
Tobacco and Alcohol	100	108	100	98	102	102	100
All Items	100	108	111	110	112	111	111

GROUP SUMMARY AND TOTAL BUDGET INDEX CALCULATION

		LABRADOR CITY		HAPPY VALLEY		MAMKOVIK		CAITWRIGHT		MARY'S HARBOUR		RED BAY	
ITEM	Group Weights	Group Index	AGG. *	Group Index	AGG.	Group Index	AGG.	Group Index	AGG.	Group Index	AGG.	Group Index	AGG.
FOOD	31.92	106.44	3397.56	116.05	3704.32	93.45	2982.92	106.77	3408.09	100.06	3193.91	108.59	3466.19
HOUSEHOLD OPERATION	20.38	101.98	2078.35	112.05	2283.58	142.09	2895.79	121.79	2482.08	126.49	2577.86	123.17	2510.20
CLOTHING	14.56	100.00	1456.00	100.00	1456.00	100.00	1456.00	100.00	1456.00	100.00	1456.00	100.00	1456.00
TRANSPORTATION	13.47	132.10	1779.38	114.84	1545.55	128.24	1727.39	135.35	1826.00	136.03	1832.32	126.05	1697.89
HEALTH & PERSONAL CARE	5.49	109.99	603.84	116.94	642.00	107.43	589.79	110.37	605.93	113.95	625.58	90.66	497.72
RECREATION	6.48	107.22	694.78	100.42	650.72	96.59	625.90	99.51	644.82	104.35	676.18	102.75	665.82
TOBACCO & ALCOHOL	7.70	107.96	831.29	100.28	772.15	96.71	744.66	100.69	775.31	101.90	784.63	99.94	769.54
			<u>10841.23</u>		<u>11054.32</u>		<u>11022.47</u>		<u>11195.41</u>		<u>11146.51</u>		<u>11063.97</u>
			100		100		100		100		100		100
TOTAL BUDGET INDEX	100.00		108.4		110.5		110.2		112.0		111.5		110.6

* AGGREGATE (See Appendix B for Explanation)

2. Cost Differentials--Disaggregated Analysis

A. Food

Food costs are approximately 4-8 per cent higher in Labrador than in St. John's. However, at one extreme there is Happy Valley where costs are some 16 per cent higher and Makkovik at the other where costs are 7 per cent lower. All food items in Happy Valley are proportionately higher than other Labrador communities. This is probably due to seasonal shipping difficulties and higher storage and warehouse costs which are not as serious in other Labrador communities as they are in Happy Valley. The food group index for Makkovik is noticeably low. This is attributable to the presence in the community of an NLSD store which is a government owned and operated, non-profit organization.

The overall higher costs of food in Labrador reflect the higher transportation costs involved in bringing goods into the area. Western Labrador communities pay high transportation costs because their supplies are shipped from Montreal, either through the privately owned Quebec North Shore and Labrador Railway or by air freight. Coastal communities pay high transportation costs for their supplies because they are sent from various wholesale outlets around the Island via the CN coastal service.¹ In addition, during the winter months air transportation is the only means of

¹Lewisporte is the main island shipping point for goods to the Labrador coast.

shipping freight to the coast. Moreover, the extra costs of maintaining warehouse space to hold large inventories and the costs incurred due to high rates of food spoilage, which are ultimately passed on to the local consumer, add to the overall higher costs of food in Labrador.

The inclusion of transportation costs in the price of foodstuffs retailed in Labrador communities would perhaps have been expected to result in the overall level of food prices being much higher than the general results indicate. What appears to be particularly important in giving such low overall results, and more especially in the food index for the coastal communities, is the apparent nature of the beef products pricing policy. An examination of Work Sheets Nos. 2 and 3 will show that the meat index for Red Bay and Mary's Harbour is low compared to other Labrador communities. This is attributed to the availability of "boneless beef" which is sold without any distinction made between quality or cut of meat. In addition to the single price irrespective of cut, the prices of beef cuts, in general, tend to be considerably lower compared to St. John's.

The effect of this is to exert considerable downward influence on the overall food index for these communities in relation to St. John's owing to the fact that the meat index has the largest weight among the main sub-groups comprising the food index.

FOOD SUB-GROUP SUMMARY AND FOOD INDEX CALCULATION

FOOD SUB-GROUPS	Weight	ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		HARBOUR		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Index	AGG.	Index	AGG.	Index	AGG.	Index	AGG.	Index	AGG.	Index	AGG.
DAIRY	19.30	100	98.8	1906.84	114.8	2215.64	94.0	1814.20	113.7	2194.41	110.53	2133.23	109.8	2119.14
CEREAL	13.30	100	109.7	1459.01	115.8	1540.14	114.8	1526.84	119.1	1584.03	114.5	1522.85	120.9	1607.97
MEAT	36.23	100	103.7	3757.05	111.7	4046.89	81.1	2938.25	98.6	3572.27	82.1	2974.48	87.8	3180.99
MISCEL- LANEOUS	14.68	100	115.2	1691.14	127.1	1865.82	100.1	1469.46	125.3	1839.40	124.7	1830.59	130.0	1908.40
VEGETABLES FRESH	7.48	100	113.0	845.24	118.8	888.62	80.6	602.88	75.9	567.73	77.8	581.94	108.7	813.07
VEGETABLES CANNED OR DRIED	3.33	100	114.1	379.95	135.9	452.55	116.6	388.27	112.1	373.29	115.5	384.61	120.8	402.26
FRUIT CAN- NED OR DRIED	3.72	100	108.3	402.87	105.5	392.46	99.5	370.14	92.9	345.58	110.5	411.06	117.8	438.22
FROZEN	1.84	100	109.7	201.85	110.0	202.40	127.1	233.86	108.8	200.19	91.0	167.44	211.4	388.97

			<u>10643.95</u>		<u>11604.53</u>		<u>9344.93</u>		<u>10676.93</u>		<u>10096.21</u>		<u>10859.03</u>	
			100		100		100		100		100		100	
TOTAL FOOD INDEX	100.00		106.44		116.05		93.45		106.77		100.06		108.59	

ITEM SUMMARY AND SUB-GROUP (FOOD) INDEX CALCULATION

ITEM	Weights	ST. JOHN'S BASE PRICE	LABRADOR CITY		HAPPY VALLEY		MAKOVIK NLSD		CARTWRIGHT Hudson's Bay		MARY'S HARBOUR		RED BAY	
			Price	W.P.R.*	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
DAIRY														
Milk - Fresh	24.2	.41	.41	24.2	.43	25.38	N.A.	0	N.A.		N.A.		N.A.	
- Evaporated	16.6	.23	.22	15.87	.23	16.60	.24	22.64	.26	18.76	.24	19.56	.25	20.49
- Powdered	3.14	.65	.74	3.57	.70	6.38	.45	21.80	.75	31.54	.76	31.96	.65	27.34
Coffee Creamer	2.21	.25	.40	3.54	.38	3.34	N.A.	0	.30	2.65	N.A.		N.A.	
Margarine	12.75	.35	.40	14.57	.41	14.93	.40	18.86	.43	15.66	.35	12.75	.35	12.75
Butter	3.78	.77	.84	4.12	.80	3.92	N.A.	0	.89	4.37	.90	4.42	.95	4.66
Cheese	9.79	.89	.86	9.46	.99	10.89	.72	7.92	.87	9.56	.85	9.35	.95	10.45
Ice Cream	7.02	.35	.34	6.82	.55	11.03	N.A.	0	.49	9.82	.40	8.02	.55	11.03
Eggs	20.51	.80	.65	16.66	.99	25.38	.89	22.81	.83	21.28	.95	24.36	.90	23.07
DAIRY INDEX	100.00			98.8		114.8		94.0		113.7		110.53		109.8
CEREALS									10.58					
Bread	42.17	.33	.35	44.72	.35	44.72	.42	53.67	8.56 - 1.23	51.87	.40	51.11	.45	57.50
Flour	13.26	.82	1.02	16.49	1.05	16.97	.66	10.67	1.05	16.98	.91	14.71	.77	12.45
Corn Flakes	7.16	.39	.44	8.08	.49	8.99	.45	8.26	.51	9.36	.55	10.09	.35	6.42
Soda Crackers	4.51	.45	.51	5.11	.55	5.51	.51	5.11	.49	4.91	.50	5.01	.45	4.51
Cake Mix	10.62	.49	.56	12.13	.57	10.62	.58	12.57	.54	11.31	.60	13.00	.60	13.00
Cookies	20.95	.51	.53	21.77	.59	24.23	.56	23.00	.56	23.01	.45	18.48	.60	24.65
Macaroni & Cheese	1.33	.18	.19	1.40	.41	3.03	.21	1.55	.23	1.70	.28	2.07	.32	2.36
CEREAL INDEX	100.00			109.7		115.8		114.8		119.1		114.5		120.9
MEAT, FISH & POULTRY														
Stewing Beef	3.66	1.15	1.39	4.42	1.09	3.47	.59	2.05	1.29	4.10	.90	2.86	1.05	3.34
Hamburger Meat	6.19	.79	.79	6.19	.95	7.44	.79	7.00	.89	6.97	.90	7.05	1.05	8.23
Rib Roast	6.42	1.13	1.15	6.53	1.39	7.89	N.A.		1.63	9.26	.90	5.11	1.05	5.96
Sirloin Steak	9.43	1.69	1.69	9.43	1.89	10.54	1.50	9.58	1.33	7.42	.90	5.02	1.05	5.86
Pork Chops	9.51	1.45	1.39	9.12	1.45	9.51	1.04	7.89	1.79	8.46	.85	5.57	.95	6.23
Ham	8.72	1.59	1.79	9.81	1.35	7.40	.85	5.38	.83	4.55	.90	4.93	.95	5.21
Bacon	8.72	1.29	1.26	8.52	1.42	9.59	.97	7.57	1.23	8.31	.90	6.08	.95	6.42
Chicken Fryer	13.81	.59	.63	14.76	.79	13.49	.56	15.13	.63	14.75	.65	15.21	.70	16.38
Cod Fillets	7.22	.89	.99	8.31	.95	7.71	.68	6.36	.69	5.59	.60	4.87	.60	4.87
Wieners	2.98	.75	.69	2.74	.89	3.54	.62	2.84	.83	3.29	.75	2.98	.75	2.98
Bologna	4.58	.57	.53	4.25	.59	4.74	.48	4.45	.60	4.82	.60	4.82	.60	4.82
Salt Meat	3.09	.75	.79	3.25	.67	2.76	.59	2.81	.69	2.84	.70	2.88	.80	3.29
Round Steak	6.76	1.57	1.73	7.45	1.79	7.70	N.A.		1.69	7.28	.90	3.87	1.05	4.52
Canned Meat	4.24	.61	.73	5.07	.64	4.40	.64	5.13	.71	4.93	.85	5.90	.69	4.79
Sausage	4.47	.69	.63	4.08	.99	6.41	.65	4.86	.93	6.02	.75	4.85	.75	4.85
MEAT INDEX	100.00			103.7		111.7		81.1		98.6		82.1		87.8
* Weighted Price Relative (See Appendix B for explanation)														

ITEM SUMMARY AND SUB-GROUP (FOOD) INDEX CALCULATION

		ST. JOHN'S BASE	LABRADOR CITY	HAPPY VALLEY	MAKOVIK	CARTWRIGHT	MARY'S HARBOUR	RED BAY						
I T E M	Weight	Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
MISCELLANEOUS														
Coffee	9.88	1.38	1.15	8.23	1.69	12.09	1.29	9.23	1.75	12.52	1.85	13.24	1.29	9.23
Tea Pkg.	20.06	.94	1.07	22.83	.95	20.27	.73	15.57	.99	21.12	.80	17.07	1.25	26.67
Soft Drinks	22.67	.12	.17	32.11	.20	37.78	.15	28.33	.19	35.89	.20	37.78	.20	37.78
Sugar	11.63	.78	.95	14.16	.92	13.72	.93	13.86	.95	14.16	1.00	14.91	1.00	14.91
Soup	11.34	.23	.16	7.88	.26	12.82	.19	9.36	.27	13.31	.28	13.80	.25	12.33
Molasses	2.33	.29	.33	2.65	.40	3.21	.29	2.33	.48	3.85	.35	2.81	.35	2.81
Jam	4.94	.51	.51	4.94	.53	5.13	.40	3.87	.53	5.13	.60	5.81	.65	6.29
Dried Soup	.58	.27	.28	0.60	.42	0.90	.33	0.71	.43	0.92	N.A.		.20	0.43
Peanut Butter	1.74	.44	.46	1.82	.48	1.90	.43	1.70	.48	1.89	.65	2.57	.49	1.94
Chocolate Bar	9.88	.11	.15	13.47	.15	13.47	.11	9.88	.10	8.98	.10	8.98	.11	9.88
Pickles	4.94	.35	.46	6.49	.41	5.79	.37	5.22	.53	7.48	.55	7.76	.55	7.76
MISCELLANEOUS INDEX	100.00			115.2		127.1		100.1		125.3		124.7		130.0
VEGETABLES, FRESH														
Potatoes	47.19	1.09	1.16	50.22	1.00	43.29	1.20	51.95	.70	30.30	.70	30.30	.90	38.96
Carrots	12.36	.42	.39	11.47	.75	22.07	.22	6.47	.36	10.59	.50	14.71	.40	11.77
Cabbage	19.10	.19	.27	27.14	.35	35.18	.13	13.06	.19	19.10	.18	18.09	.18	18.09
Onions	7.30	.50	.49	7.15	.59	8.61	.22	3.21	.38	5.55	.40	5.84	.30	4.38
Turnips	14.05	.19	.23	17.01	.13	9.61	.08	5.91	.14	10.35	.12	8.87	.48	35.49
VEGETABLE, FRESH INDEX	100.00			113.0		118.8		80.6		75.9		77.8		108.7
VEGETABLES, DRIED & CAN.														
Peas	30.95	.22	.29	40.79	.34	47.83	.27	37.98	.25	35.17	.30	42.20	.30	42.20
Corn	20.24	.23	.21	18.47	.29	25.52	.35	30.79	.20	17.60	.22	19.36	.25	21.99
Beans (Pork)	35.72	.35	.38	38.78	.44	44.90	.34	34.69	.43	43.88	.40	40.82	.40	40.82
Peas (Dried)	7.14	.22	.24	7.78	.26	8.44	.16	5.19	.18	5.84	.20	6.49	.16	5.19
Beans (Dried)	5.95	.18	.25	8.26	.28	9.25	.24	7.93	.29	9.86	.20	6.61	.32	10.58
VEGETABLES, DRIED INDEX	100.00			114.1		135.9		116.6		112.1		115.5		120.8
FRUIT, CANNED OR DRIED														
Pineapple	8.79	.47	.29	5.42	.35	6.54	.29	5.42	.34	6.35	.40	7.48	.60	11.22
Peaches	14.28	.47	.49	14.88	.48	14.58	.49	14.88	.48	14.58	.50	15.19	.47	14.28
Pears	9.89	.35	.37	10.45	.37	10.45	.30	8.47	.38	10.74	.40	11.30	.44	12.43
Fruit Cocktail	9.89	.51	.54	10.47	.59	11.44	.53	10.28	.57	11.05	.55	10.66	.56	10.85
Apple Juice	25.27	.48	.58	30.53	.55	28.95	.62	32.64	.45	23.69	.70	36.85	.75	39.48
Orange Juice	19.78	.74	.79	21.11	.72	19.24	.58	15.50	.45	12.02	.70	18.71	.65	17.37
Raisins (Dried)	5.50	.43	.68	8.69	.69	8.82	.51	6.52	.69	8.82	.45	5.75	.52	6.65
Prunes (Dried)	6.60	.58	.59	6.71	.48	5.46	.51	5.80	.50	5.69	.40	4.55	.49	5.57
FRUIT, CANNED INDEX	100.00			108.3		105.5		99.5		92.9		110.5		117.8

ITEM SUMMARY AND SUB-GROUP (FOOD) INDEX CALCULATION

		ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		HAKEOVIK		CARIBOU		MARY'S HARBOUR		RED BAY	
ITEM	Weight	Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
<u>FROZEN</u>														
Strawberries	30.77	.58	.67	35.54	.63	33.42	.66	47.79	.72	38.19	N.A.		.65	47.06
Pears	26.92	.77	.73	25.52	.83	30.76	N.A.		.89	31.11	N.A.		N.A.	
French Fries	42.31	.60	.69	48.63	.63	45.83	.70	79.33	.56	39.48	.55	91.05	1.45	164.33
FROZEN FOOD INDEX				109.7		110.0		127.1		108.8		91.0		211.4

Work Sheet Nos. 2-5: Explanatory Notes

- (1) Weight adjustments were required in the dairy section to reflect consumption patterns in Labrador. Fresh milk is unavailable on the coast; consequently, the weight was adjusted to reflect the type of milk available there, i.e., powdered and evaporated milk.
- (2) As fresh bread was not available in Cartwright, it was necessary to calculate the cost of making a home-baked loaf there as compared to a home-baked loaf in St. John's. The method used is given in Appendix C.

Although the food price differentials are not as high as one might have anticipated, the reasons cannot be attributed to price alone. The real price differentials have not been measured owing to the inability to measure quality change satisfactorily. For example, perishable goods shipped to Labrador have changes in their basic characteristics (i.e., deterioration) due to transportation distance, freezing, etc.. However, further discussion and analysis of this problem will be presented in the next chapter.

B. Household Operation

The indices for household operation in the Labrador communities are markedly higher than the overall index. The items in this group cost an average of 20 per cent more than in St. John's. The coastal communities have differentials ranging from 20-40 per cent higher than the urban centres of St. John's and Labrador City which have similar cost levels for household operation. These differentials are due mainly to the high cost of fuel and to electricity rates in Labrador.

The main reason for the high fuel costs on the coast of Labrador is the lack of bulk storage facilities. Fuel is supplied to coastal communities in 45 gallon barrels. Besides the storage, handling and shipping problems involved, there is a great deal of working capital tied up in barrels. A fuel supplier in Makkovik reported that he had approximately \$60,000 worth of barrels in stock.

With the exception of Labrador City where rates are subsidized by the Iron Ore Company, electricity rates are extremely high in all the communities surveyed. Rates are from 2-2½ times as expensive in Happy Valley and the Coast, as in St. John's. To show the high costs of energy in Labrador, the indices for fuel and light are given in Table III.2.

TABLE III.2
FUEL AND LIGHT INDICES FOR LABRADOR COMMUNITIES
(St. John's = 100)

	Fuel and Light Index
Labrador City	106
Happy Valley	129
Makkovik	200
Cartwright	151
Mary's Harbour	169
Red Bay	154

The high costs of energy in Labrador have prevented most coastal people from enjoying some of the more basic comforts of life. The high cost of fuel prevents the average family from having central heating in their homes. Most cannot afford to have kitchen oil ranges for cooking; they have to rely on the wood stove. To make the situation worse,

it is becoming more difficult to find wood to cut because supplies of standing timber suitable for firewood are located at considerable distance from the communities. Most trips involve travelling 15-20 miles inland before finding wood suitable for cutting. As a result it is a full day's work to keep up the supply of firewood. Most people would prefer to give up their wood stoves in favour of oil ranges but the high costs of fuel make it impossible.

Other items of Household Operation--furniture, appliances, supplies, etc.--can be purchased from the Hudson's Bay Stores in Labrador City and Happy Valley. Nevertheless, Simpson's and Eaton's mail order stores offer comparable merchandise at lower prices.

On the coast, catalogue buying is the only way to purchase major appliances. For this reason it was decided to use Eaton's catalogue for prices throughout Labrador. A study of catalogue buying revealed different catalogues being used for different parts of Labrador. Labrador City, coming within a different pricing zone, paid 10-15 per cent less than St. John's for heavy appliances even after additional freight charges were added according to the delivery distance. Although it is usually the policy of mail order companies to assume the delivery costs on all items sold, it is not the case for heavy appliance items destined for Labrador City. The company will pay the shipping charges only to Seven Islands. The purchaser must pay the cost of

HOUSEHOLD OPERATION SUB-GROUP SUMMARY AND HOUSEHOLD OPERATION INDEX CALCULATION

		ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		MAMKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
HOUSEHOLD OPERATION SUB-GROUPS	Weight		Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
FUEL AND LIGHT	38.67	100	106.2	4106.75	128.5	4969.09	199.7	7722.39	151.2	5846.90	169.4	6550.69	154.3	5966.78
FURNITURE	21.09	100	95.09	2005.45	100.0	2109.00	100.0	2109.00	100.0	2109.00	100.0	2109.00	100.0	2109.00
APPLIANCES	8.83	100	98.6	870.64	100.0	883.00	100.0	883.00	100.0	883.00	100.0	883.00	100.0	883.00
SUPPLIES	17.42	100	104.4	1818.65	112.0	1951.04	122.8	2139.17	113.8	1982.39	102.1	1778.58	122.5	2133.95
SERVICES	12.99	100	99.8	1396.20	92.4	1292.67	96.9	1355.63	97.02	1357.31	94.9	1327.65	87.5	1224.12
				<u>10197.69</u>		<u>11204.81</u>		<u>14209.21</u>		<u>12178.61</u>		<u>12648.93</u>		<u>12316.85</u>
				100		100		100		100		100		100
TOTAL HOUSE- HOLD OPERA- TION INDEX	100.0		101.98		112.05		142.09		121.79		126.49		123.17	

ITEM SUMMARY AND SUB-GROUP (HOUSEHOLD) INDEX CALCULATION

HOUSEHOLD OPERATION I T E M S	Weight	ST. JOHN'S	LABRADOR CITY		HAPPY VALLEY		MAKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY		
		Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	
FUEL & LIGHT															
Fuel Oil	65.63	26.2	31.3	78.40	27.7	69.38	.46	115.23	.37	92.68	.44	110.21	.38	95.18	
Electricity	34.37	16.27	13.15	27.77	28.00	59.14	40.00	84.49	28.00	59.15	28.00	59.15	28.00	59.14	
FUEL & LIGHT INDEX	100.00			106.2		128.5		199.7		151.2		169.4		154.3	
FURNITURE															
Bedroom Suite	30.79	369.95	356.13	29.65	369.95	30.79	369.95	30.79	369.95	30.79	369.95	30.79	369.95	30.79	
Living Room Suite	43.22	399.99	380.74	41.13	399.99	43.22	399.99	43.22	399.99	43.22	399.99	43.22	399.99	43.22	
Dinette Suite	25.99	149.99	140.23	24.29	149.99	25.99	149.99	25.99	149.99	25.99	149.99	25.99	149.99	25.99	
FURNITURE INDEX	100.00			95.09		100.00		100.00		100.00		100.00		100.00	
APPLIANCES															
Refrigerator	38.35	369.95	365.19	37.85	369.95	38.35	369.95	38.35	369.95	38.35	369.95	38.35	369.95	38.35	
Range	27.22	274.95	270.19	26.74	274.95	27.22	274.95	27.22	274.95	27.22	274.95	27.22	274.95	27.22	
Wash Machine	34.43	349.95	345.19		349.95	34.43	349.95	34.43	349.95	34.43	349.95	34.43	349.95	34.43	
APPLIANCES INDEX	100.00			98.6		100.00		100.00		100.00		100.00		100.00	
SUPPLIES															
Detergent (Powder)	15.40	1.17	1.19	15.66	1.25	16.45	1.38	18.16	1.27	16.71	1.25	16.45	1.25	16.45	
Detergent (Liquid)	15.13	.59	.81	20.77	.85	21.79	.94	24.10	.95	24.36	.99	25.38	1.18	30.26	
Bleach	12.30	.37	.34	11.30	.38	12.63	.39	12.96	.41	13.63	.47	15.62	.55	18.28	
Floor Wax	7.38	1.44	1.54	7.89	1.55	7.94	1.38	7.07	1.49	7.64	1.48	7.58	1.33	6.81	
Wax Paper	15.96	.38	.43	18.06	.49	20.57	.40	16.79	.45	18.89	.47	19.73	.65	27.29	
Toilet Paper	14.03	.41	.38	13.00	.39	13.34	.26	8.89	.39	13.34	.30	10.26	.48	16.42	
Pet Food	10.58	.16	.18	11.90	.20	13.22	.36	23.82	.20	13.22	N.A.		N.A.		
Metal Utensil (F. Pan)	9.22	1.97	1.25	5.85	1.29	6.04	2.35	10.99	1.29	6.03	1.50	7.05	1.49	6.97	
SUPPLIES INDEX	100.00			104.4		112.0		122.78		113.8		102.1		122.5	
SERVICES															
Telephone (Local)	53.29	7.00	4.50	34.25	4.50	34.25	4.50	34.25	4.23	32.20	4.23	32.20	4.23	32.20	
Telephone (Long Dist.)	31.94	3.30	4.50	43.55	4.20	40.65	4.20	51.82	4.50	43.55	4.20	51.82	3.60	44.42	
Telegram	8.78	2.15	3.50	14.29	2.40	9.80	N.A.		2.55	10.41	N.A.		N.A.	10.86	
Insurance - 3 Yr.	5.98	114.00	147.00	7.71	147.00	7.71	207.00	10.85	207.00	10.85	207.00	10.85	207.00		
SERVICES INDEX	100.00			99.8		92.4		96.9		97.02		94.9		87.5	

Work Sheet Nos. 6 and 7: Explanatory Notes(1) Fuel and Light

Prices for heating fuel were worked out on a "per gallon" basis, but it must be remembered that in addition to the cost of fuel being higher in Labrador, the quantity used in a given year is much higher than in St. John's. When pricing electrical power, it was decided to use an average monthly consumption of 1000 KWH and to survey the cost of this amount in each community.

(2) Furniture and Appliances

In pricing furniture and appliances, reference was made to Eaton's for prices on specific items. These items are identified in the sample survey sheet in Appendix A.

(3) Services

In pricing telephone service in Labrador, the monthly service charge for a private line with black telephone was taken for comparison. For long distance calls and telegrams, Halifax was chosen as a point equidistant from St. John's and the Labrador communities.

shipping the item from Seven Islands to Labrador City which has to come via the privately owned Quebec North Shore and Labrador Railway.

The rest of Labrador comes under the Atlantic pricing zone and pays the same prices as St. John's because of "freight absorption." Additional freight charges are not added to deliveries made to these Labrador communities because people living in easily accessible areas are indirectly paying the higher freight costs to these isolated areas through higher prices.¹

With regard to service items, telephone rates in Labrador have traditionally been lower than those in St. John's. Insurance rates based on \$10,000 coverage on house and household effects in Labrador City and Happy Valley are approximately 30 per cent above the St. John's rates and almost 100 per cent higher in coastal communities. These higher rates are probably due to the lack of professional fire fighting equipment, especially on the coast.

C. Clothing

Clothing was the most difficult group in trying to formulate a basis for comparability. This arises from the wide variety of fashions and styles of clothing, which makes it difficult to make comparisons on the basis of brand name,

¹ However, deliveries to these Labrador communities can be made only during the shipping season, only four or five months each year.

CLOTHING SUB-GROUP SUMMARY AND CLOTHING INDEX CALCULATION

		ST. JOHN'S BASE = 100	LABRADOR CITY		HAPPY VALLEY		MANKOVIC		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
CLOTHING SUB-GROUPS	Weight		Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
MEN'S WEAR	29.57	100	100.0	2957.00	100.0	2957.00	100.0	2957.00	100.0	2957.00	100.0	2957.00	100.0	2957.00
WOMEN'S WEAR	42.27	100	100.0	4227.00	100.0	4227.00	100.0	4227.00	100.0	4227.00	100.0	4227.00	100.0	4227.00
CHILDREN'S WEAR	10.42	100	100.0	1042.00	100.0	1042.00	100.0	1042.00	100.0	1042.00	100.0	1042.00	100.0	1042.00
FOOTWEAR	13.30	100	100.0	1330.00	100.0	1330.00	100.0	1330.00	100.0	1330.00	100.0	1330.00	100.0	1330.00
PICKER GOODS	4.44	100	100.0	444.00	100.0	444.00	100.0	444.00	100.0	444.00	100.0	444.00	100.0	444.00
TOTAL CLOTHING INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0

ITEM SUMMARY AND SUB-GROUP (CLOTHING) INDEX CALCULATION

		ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		MARKOVIX		CARTWRIGHT		MARY'S HARBOUR		RED RAY	
I T E M	Weights	Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
MEN'S WEAR														
Parka	17.65	39.95	39.95	17.65	39.95	17.65	39.95	17.65	39.95	17.65	39.95	17.65	39.95	17.65
Wool Trousers	53.84	17.88	17.88	53.84	17.88	53.84	17.88	53.84	17.88	53.84	17.88	53.84	17.88	53.84
Sport & Work Shirt	18.02	5.95	5.95	18.02	5.95	18.02	5.95	18.02	5.95	18.02	5.95	18.02	5.95	18.02
Socks (3 pr. for)	3.45	2.89	2.89	3.45	2.89	3.45	2.89	3.45	2.89	3.45	2.89	3.45	2.89	3.45
Undershirts	3.52	2.00	2.00	3.52	2.00	3.52	2.00	3.52	2.00	3.52	2.00	3.52	2.00	3.52
Undershorts	3.52	1.75	1.75	3.52	1.75	3.52	1.75	3.52	1.75	3.52	1.75	3.52	1.75	3.52
MEN'S WEAR INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0
WOMEN'S WEAR														
Parka	30.68	29.95	29.95	30.68	29.95	30.68	29.95	30.68	29.95	30.68	29.95	30.68	29.95	30.68
Wool Slacks	22.79	14.98	14.98	22.79	14.98	22.79	14.98	22.79	14.98	22.79	14.98	22.79	14.98	22.79
Wool Dress	12.06	21.98	21.98	12.06	21.98	12.06	21.98	12.06	21.98	12.06	21.98	12.06	21.98	12.06
Nylon Hose	22.34	2.00	2.00	22.34	2.00	22.34	2.00	22.34	2.00	22.34	2.00	22.34	2.00	22.34
Sweater	12.13	9.00	9.00	12.13	9.00	12.13	9.00	12.13	9.00	12.13	9.00	12.13	9.00	12.13
WOMEN'S WEAR INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0
CHILDREN'S WEAR														
Boy's Parka	15.38	17.99	17.99	15.38	17.99	15.38	17.99	15.38	17.99	15.38	17.99	15.38	17.99	15.38
Boy's Slacks	21.36	7.99	7.99	21.36	7.99	21.36	7.99	21.36	7.99	21.36	7.99	21.36	7.99	21.36
Boy's Shirt	11.75	3.99	3.99	11.75	3.99	11.75	3.99	11.75	3.99	11.75	3.99	11.75	3.99	11.75
Girl's Slacks	14.54	9.98	9.98	14.54	9.98	14.54	9.98	14.54	9.98	14.54	9.98	14.54	9.98	14.54
Girl's Jacket	19.44	29.95	29.95	19.44	29.95	19.44	29.95	19.44	29.95	19.44	29.95	19.44	29.95	19.44
Girl's Wool Dress	17.53	12.98	12.98	17.53	12.98	17.53	12.98	17.53	12.98	17.53	12.98	17.53	12.98	17.53
CHILDREN'S WEAR INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0
FOOTWEAR														
Men's Boots & Shoes	52.72	15.99	15.99	52.72	15.99	52.72	15.99	52.72	15.99	52.72	15.99	52.72	15.99	52.72
Men's Overboots	18.18	13.99	13.99	18.18	13.99	18.18	13.99	18.18	13.99	18.18	13.99	18.18	13.99	18.18
Woman's Snowboots	24.15	23.99	23.99	24.15	23.99	24.15	23.99	24.15	23.99	24.15	23.99	24.15	23.99	24.15
Children's Overboots	4.95	3.99	3.99	4.95	3.99	4.95	3.99	4.95	3.99	4.95	3.99	4.95	3.99	4.95
FOOTWEAR INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0
PIECE GOODS														
Yard Goods	71.30	6.50	6.50	71.30	6.50	71.30	6.50	71.30	6.50	71.30	6.50	71.30	6.50	71.30
Knitting Goods	28.70	1.00	1.00	28.70	1.00	28.70	1.00	28.70	1.00	28.70	1.00	28.70	1.00	28.70
PIECE GOODS INDEX	100.00			100.0		100.0		100.0		100.0		100.0		100.0

75

Work Sheet Nos. 8 and 9: Explanatory Notes

Most communities, as previously mentioned, have to rely on Eaton's mail order service for their needs. It was decided, therefore, to use clothing from the Eaton's catalogue as it offered comparability with no problems of brand names, quality, etc.. Further study showed that prices were identical for clothing all over Labrador even though the area is divided by two pricing zones. Inquiries with postal officials showed that all clothing items under 33 lbs. would be sent by air mail and that purchasers would not be required to pay any extra mailing charges.

kind, and quality of material used. This problem is augmented by the inadequate clothing stocks in coastal communities. From the procedure finally decided upon for assessing the comparative costliness of clothing in Labrador, it was found that there were no differences in prices between Labrador and St. John's. Thus, the results of this method of calculation show indices of 100 for clothing in all communities.

D. Transportation

Automobiles are used in Labrador City and Happy Valley, for local transportation, as in St. John's. A different situation exists on the coast as the basic means of transportation is by boat in the summer and skidoo in winter. With the exception of some roads in Cartwright and the highway running from Blanc Sablon to Red Bay there were no roads in the coastal communities visited. The skidoo has replaced the dog team as the principal means of land transportation on the coast. In some communities, skidoos can be used as much as nine months of the year.

With the difficulty in finding automobile dealers and skidoo dealers in Labrador and the exceptionally large number shipped in from various parts of Newfoundland and Montreal, a standard for price comparisons was impossible to obtain. It was decided, therefore, to price only those items that would be required for the basic operation of skidoos and automobiles. With these factors in mind, the

total of weight for local transportation was applied to automobile operation for Labrador City and Happy Valley. For local transportation on the coast, the same weight was applied to skidoo operation (see Work Sheet No. 11).

These typical modes of transportation are radically different and the problems of treating them as substitute goods are readily apparent; nevertheless, the transportation goods chosen are considered to be acceptably rough substitutes owing to the different forms of transportation technology. While this is the situation, there may be some doubt as to the applicability of the transportation section of the St. John's patterns to Labrador, particularly to the coastal communities.

Although the indices for automobile and skidoo operation are low in relation to the overall transportation index, a close examination of the prices for regular grade gasoline reveals a high differential between Labrador and St. John's (see Table III.3).

The reasons for the high costs of gasoline might be traced, as in the case of home heating fuel, to the lack of bulk storage facilities. Note that with the exception of Makkovik which has an NLSD store, gasoline prices increase the further north along the coast the settlement is situated, even though the marketing structure and handling facilities are roughly identical for these coastal communities.

TABLE III.3
A COMPARISON OF GASOLINE PRICES

St. John's	.63 per gal.
Labrador City	.69 per gal.
Happy Valley	.65 per gal.
Makkovik	.69 per gal.
Cartwright	.76 per gal.
Mary's Harbour	.75 per gal.
Red Bay	.71 per gal.

A major source of discontent in many communities in Labrador is having to pay tax on gasoline. In summer, the coastal people get their gasoline tax exempt if they use it in their boats. In winter, however, they must pay the full price for gasoline when used in their skidoos. The skidoo is not looked upon as a source of enjoyment or recreation, it is a means of local transportation and it is especially important for coastal people in winter. These people do not feel that the government is justified in collecting these taxes, especially since there are no highways or highway services.

It will be seen in Work Sheet No. 11 that the cost of automobile insurance in Labrador City and Happy Valley is considerably cheaper than St. John's. Insurance authorities explained that there were much fewer third party

liability claims in Labrador communities due to the fewer numbers of cars. Therefore, residents are able to get their automobile insurance at a cheaper rate.

With regard to costs of long distance travel from Labrador, it was very difficult to reflect, in compiling the index, the high costs of travelling within Labrador as well as the high costs of travelling to points outside Labrador. The only satisfactory means of transportation to and from Labrador is by air. Labrador City and Happy Valley are served by daily flights to St. John's and Montreal. The larger coastal communities also rely heavily on air service for their transportation requirements. Although CN boats offer coastal passenger services and stop at most settlements along the coast, these could not be used if time were an important factor. As this air service for coastal communities is based in Goose Bay, anyone from the coast wishing to fly out of Labrador has to fly to Goose Bay first and fly on from there.

To compile this index Halifax was used as the third point equidistant from St. John's and Labrador. The cost differentials for Halifax to Labrador City and Happy Valley are given in the work sheets. The cost for the coastal communities is double for residents of coastal communities travelling to Halifax. They have to pay the fares from their community to Goose Bay and then from Goose Bay to Halifax. This is why the indexes for travel in coastal

TRANSPORTATION SUB-GROUP SUMMARY AND TRANSPORTATION INDEX CALCULATION

SUB-GROUPS	ST. JOHN'S BASE WEIGHTS		LABRADOR CITY		HAPPY VALLEY		MAKOVIE		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
AUTOMOBILE	74.42	N.A.	103.3	7687.59	98.7	7345.25								
SKIDOO OR BOAT	N.A.	74.42					94.3	7017.81	102.2	7605.72	103.9	7732.24	98.3	7315.48
DISTANT TRAVEL	25.58	25.58	215.9	5522.72	161.4	4128.61	227.0	5806.66	231.8	5929.44	229.5	5870.61	206.8	5289.94

13210.31

11473.86

12824.46

13535.17

13602.84

12605.43

100

100

100

100

100

100

100.00

100.00

TOTAL TRANSPORTATION
INDEX

100.00

132.10

114.74

128.24

135.35

136.03

126.05

ITEM SUMMARY AND SUB-GROUP (TRANSPORTATION) INDEX CALCULATION

		ST. JOHN'S	LABRADOR CITY	HAPPY VALLEY	MAXKOVIX	CARTWRIGHT	MARY'S HARBOUR	RED BAY						
ITEM	Weight	Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
<u>AUTO</u>														
Gasoline	59.55	.63	.69	65.22	.65	61.44	N.A.		N.A.		N.A.		N.A.	
Oil	4.91	1.10	1.12	4.99	1.16	5.18	N.A.		N.A.		N.A.		N.A.	
Battery - 12 vlt.	.97	25.95	42.50	1.58	40.32	1.50	N.A.		N.A.		N.A.		N.A.	
Oil Filter	2.53	3.00	3.50	2.95	3.65	3.07	N.A.		N.A.		N.A.		N.A.	
Spark Plug	2.53	1.25	1.65	3.33	.98	1.98	N.A.		N.A.		N.A.		N.A.	
Insurance	21.57	359.00	279.00	16.76	279.00	16.76	N.A.		N.A.		N.A.		N.A.	
Tires	7.93	28.95	30.95	8.47	31.95	8.75	N.A.		N.A.		N.A.		N.A.	
AUTO INDEX	100.00			103.3		98.7								
<u>SKIDOO OR BOAT</u>														
Gasoline	38.46	.63	N.A.		N.A.	.69	42.12	.76	46.39	.75	45.78	.71	43.34	
Oil	15.38	1.10	N.A.		N.A.	.67	9.36	.79	11.04	.60	8.38	.75	10.48	
Spark Plug	15.39	1.30	N.A.		N.A.	.85	10.06	1.20	14.20	1.20	14.20	1.10	13.02	
Drive Belt	15.39	10.25	N.A.		N.A.	7.50	11.26	9.50	14.26	13.00	15.01	7.95	11.93	
Ski	15.38	7.50	N.A.		N.A.	10.50	21.53	7.95	16.30	10.00	20.50	9.50	19.48	
SKIDOO INDEX	100.00						94.3		102.2		103.9		98.3	
<u>DISTANT - TRAVEL</u>														
DISTANT - PLANE	100.00	44.00	95.00	215.9	71.00	161.4	100.00	227.0	102.0	231.8	101.0	229.5	91.0	206.8
DISTANT INDEX	100.00			215.9		161.4		227.0		231.8		229.5	(approx.)	206.8

Work Sheet Nos. 10 and 11; Explanatory Notes

The items chosen for automobile operation were those that would be required for the basic operation and maintenance of the vehicle. These include the cost of:

- (1) Regular gasoline per gallon,
- (2) Quart of motor oil--medium priced 10W/30,
- (3) Oil Filter--1971 Chevrolet--six cylinder,
- (4) Spark plug--1971 Chevrolet--six cylinder,
- (5) Battery--medium priced--1971 Chevrolet--six cylinder,
- (6) Tire--7.75x14--4 ply glass-belted white-wall,
- (7) Insurance--1971 Chevrolet--six cylinder:
 - (a) PL/PD \$35,000
 - (b) Collision \$ 100 Deductible
 - (c) Comprehensive \$ 24 Deductible.

Skidoo items chosen for comparison include:

- (1) Regular gasoline per gallon,
- (2) Quart of Redi-mix skidoo motor oil,
- (3) Spark plug--1973 Skidoo Elan,
- (4) Drive Belt--1973 Skidoo Elan,
- (5) Front Ski--1973 Skidoo Elan.

To explain in more detail the high cost of travelling for the coastal people, it seemed best to show the actual fares for flying by Labrador Airway from points on the Labrador coast to Goose Bay airport (one way).

Work Sheet Nos. 10 and 11: Explanatory Notes (Continued)

- (1) Makkovik to Goose Bay - \$ 27.00
- (2) Cartwright to Goose Bay - \$ 28.00
- (3) Mary's Harbour to Goose Bay - \$ 41.00
- (4) Red Bay to Goose Bay - \$ 40.00

communities are so much higher than urban communities in Labrador.

E. Health and Personal Care

Some three-quarters of the Health and Personal Care expenditure is on personal care and one-quarter on health care. In general, the prices of personal care items, consisting mainly of toiletries, are approximately 20 per cent higher in Labrador than St. John's. It had originally been planned to include men's haircuts and ladies' hairdressing in the group, but the unavailability of professional services precluded this.

Evaluation of the comparative costs of health care in Labrador was not difficult as the area is covered by the Newfoundland Government's MCP¹ programme. This reduced the complexity of the health care section as it was possible to exclude doctors' fees, operation fees and hospitalization costs. It was decided, therefore, to compare the costs of four of the most commonly used pharmaceuticals. They were: aspirin, adhesive bandage, penicillin and phenobarbital.

As will be noticed from Work Sheet No. 13, the health care index is well below 100 for all areas of Labrador. Although no apparent reason can be given for the low cost of pharmaceuticals in Labrador City and Happy Valley, the coastal communities are serviced by the International

¹Medical Care Programme.

HEALTH AND PERSONAL CARE SUB-GROUP SUMMARY AND HEALTH-CARE INDEX CALCULATION

SUB-GROUP	Weight	ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		MARKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
PERSONAL	75.46	100	119.2	8994.83	124.6	9402.32	119.9	9047.65	120.9	9123.11	128.9	9726.79	93.7	7070.60
HEALTH CARE	24.54	100	81.67	2004.18	93.4	2292.03	69.1	1695.71	78.0	1914.12	68.0	1668.72	81.3	1995.10
			<u>10999.01</u>		<u>11694.35</u>		<u>10743.37</u>		<u>11037.23</u>		<u>11395.51</u>		<u>9065.70</u>	
			100		100		100		100		100		100	
PERSONAL & HEALTH INDEX	100.00		109.99		116.94		107.43		110.37		113.95		90.66	

ITEM SUMMARY AND SUB-GROUP (HEALTH & PERSONAL CARE) INDEX CALCULATION

I T E M	Weight	ST. JOHN'S	LABRADOR CITY		HAPPY VALLEY		MAXKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY		
		Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	
<u>PERSONAL</u>															
Toilet Soap	18.31	.12	.16	24.41	.12	18.31	.15	22.88	.14	21.36	.14	21.36	.12	18.31	
Toothpaste	34.14	.57	.67	40.13	.73	43.72	.78	46.72	.85	50.91	.90	53.90	.55	32.94	
Razor Blades	19.69	.79	1.09	27.17	1.29	32.15	.75	18.69	.79	19.69	.79	19.69	.55	13.71	
Facial Tissues	13.91	.22	.23	14.54	.24	15.17	.50	31.61	.25	15.81	.28	17.70	.25	15.81	
Deodorant	13.95	1.15	1.07	12.98	1.26	15.28	N.A.		1.09	13.22	1.34	16.25	1.07	12.97	
PERSONAL INDEX	100.00			119.2		124.6		119.9		120.9		128.9		93.7	
<u>HEALTH CARE</u>															
Aspirin	25.00	.69	.68	24.64	1.06	38.40	.98	35.50	1.12	40.57	1.10	39.85	1.20	43.47	
Adhesive Bandage	25.00	.59	.43	18.22	.53	22.46	.50	21.17	.59	25.00	.37	15.67	.60	25.42	
Penicillin	25.00	2.85	3.00	26.31	3.00	26.31	.70	6.14	.70	6.14	.70	6.14	.70	6.14	
Thenobarbital	25.00	2.00	1.00	12.50	.50	6.25	.50	6.25	.50	6.25	.50	6.25	.50	6.25	
HEALTH CARE INDEX	100.00			81.67		93.4		69.1		78.0		68.0		81.3	

Grenfell Association, whose policy is to dispense on a cost basis only, with no dispensing fees charged. However, this low index does not reflect the inconvenience and lack of readily available health care, especially in coastal communities. More will be said concerning this question of availability in the next chapter.

By taking the average of the high index for personal care items and the low index for health care items, the total index for this group, St. John's = 100, would be:

St. John's	100
Labrador City	110
Happy Valley	117
Makkoyik	107
Cartwright	110
Mary's Harbour	114
Red Bay	91

F. Recreation and Reading

In most parts of Labrador recreation activities are not available to the same extent as in St. John's. For example, television, sporting events and movies are not available on a regular basis in Labrador and these items represent well over half the expenditure on recreation in St. John's.

Happy Valley and Labrador City do have activities comparable to St. John's; however, most of these activities

are unavailable on the coast. In many instances substitute activities replaced those items which were unavailable. For example, coastal people have substituted a large investment in stereo record players and records for lack of television. Also, spectator sports have been replaced by sports in which the people themselves can participate, such as: broomball, hockey, soccer, etc.; and a large percentage of the coastal communities' people do participate.

To compile a reading index, the yearly subscription rates for the Reader's Digest and The Evening Telegram were used. The Reader's Digest appeared to be the most popular magazine in the communities visited. Although it is available to most coastal and urban communities, it is distributed by mail and delivery dates could be a month or more late, especially during winter months. The subscription rates are the same all over Newfoundland and Labrador.

The Evening Telegram is not available in Labrador on the same day it is published. Happy Valley and Labrador City are usually one or two days behind in delivery. Deliveries to coastal communities are so late that most communities do not bother to buy it. However, it is available by mail on a subscription basis to anywhere in Labrador, with the understanding that the arrival date could be a week or more behind the publishing date.

RECREATION SUB-GROUP SUMMARY AND RECREATION INDEX CALCULATION

SUB-GROUPS	Weight	ST. JOHN'S BASE	LABRADOR CITY.		HAPPY VALLEY		MAKROVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
RECREATION	82.93	100	108.71	9015.32	100.51	8335.29	95.89	7952.16	99.41	8244.07	105.25	8728.38	103.31	8567.49
READING	17.07	100	100.0	1707.00	100.0	1707.00	100.0	1707.00	100.0	1707.00	100.0	1707.00	100.0	1707.00
			<u>10722.32</u>		<u>10042.29</u>		<u>9659.16</u>		<u>9951.07</u>		<u>10435.38</u>		<u>10274.49</u>	
			100		100		100		100		100		100	
RECREATION AND READING			- INDEX 100.00		107.22		100.42		96.59		99.51		104.35	

ITEM SUMMARY AND SUB-GROUP (RECREATION) INDEX CALCULATION

I T E M S	Weights	ST. JOHN'S	LABRADOR CITY		HAPPY VALLEY		MANKOVIC		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
		Price	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
<u>RECREATION</u>														
Radio	20.0	49.95	49.95	20.00	49.95*	20.00	49.95*	20.00	49.95*	20.00	49.95*	20.00	49.95*	20.00
Camera Film	15.0	.87	.89	15.34	.87	15.00	.89	15.34	.87	15.00	.89	15.34	.99*	17.06
Record Player	35.0	259.95	265.19	35.70	259.95	35.00	259.95	35.00	259.95	35.00	259.95	35.00	259.95	35.00
Playing Cards	20.0	1.09	1.30	23.85	1.06	19.44	.79	14.49	1.00	18.34	1.30	23.85	1.10	20.18
Game (Dealer's Choice)	10.0	3.97	5.49	13.83	4.39*	11.06	4.39*	11.05	4.39	11.05	4.39*	11.05	4.39*	11.06
RECREATION INDEX	100.00			108.71		100.51		95.89		99.41		105.25		103.31
<u>READING</u>														
Newspapers	66.75	32.00	32.00	66.75	32.00	66.75	32.00	66.75	32.00	66.75	32.00	66.75	32.00	66.75
Magazine	33.25	4.95	4.95	33.25	4.95	33.25	4.95	33.25	4.95	33.25	4.95	33.25	4.95	33.25
READING INDEX	100.00		100.00	100.00		100.00		100.00		100.00		100.00		100.00
* Denotes Mail-Order Purchase Price														

Work Sheets Nos. 14 and 15: Explanatory Notes

- (1) Those items were priced which were representative of the recreational activities available to the Labrador people. These items included:
- (a) transistor radio,
 - (b) stereo component system,
 - (c) playing cards,
 - (d) camera film,
 - (e) children's game.
- (2) The radio and stereo component system priced in this group were taken from the Eaton's Catalogue 1972-73 winter edition. A description of these items is given in Appendix A.

G. Tobacco and Alcohol

The findings of the survey on the prices of tobacco and alcohol revealed little price difference between St. John's and the communities surveyed in Labrador.

However, it should be pointed out that alcoholic beverages are not available from local distributors as in Labrador City and Happy Valley (Cartwright is an exception, it has a beer retail outlet). If a consumer in these communities wants alcoholic beverages they have to obtain it through a friend or a pilot who is going to Goose Bay and is willing to bring liquor back. Otherwise it is not available.

The indexes for Tobacco and Alcohol are shown in Work Sheets Nos. 16 and 17.

TOBACCO AND ALCOHOL SUB-GROUP SUMMARY AND INDEX CALCULATION

SUB-GROUP	Weight	ST. JOHN'S BASE	LABRADOR CITY		HAPPY VALLEY		MAKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.	Index	Agg.
CIGARETTES & TOBACCO	57.66		113.8	6561.71	100.5	5794.83	94.3	5437.34	99.8	5754.47	99.4	5731.40	99.9	5760.23
ALCOHOL	42.34		100.0	4234.00	100.0	4234.00	100.0	4234.00	101.9	4314.45	105.3	4458.40	100.0	4234.00

10795.71

100

10028.83

100

9671.34

100

10068.91

100

10189.80

100

9994.23

100

TOBACCO &
ALCOHOL INDEX

100.00

107.96

100.28

96.71

100.69

101.90

99.94

ITEM SUMMARY AND SUB-GROUP (TOBACCO & ALCOHOL) INDEX CALCULATION

ITEMS	Weights	ST. JOHN'S PRICE	LABRADOR CITY		HAPPY VALLEY		MARKOVIK		CARTWRIGHT		MARY'S HARBOUR		RED BAY	
			Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.	Price	W.P.R.
TOBACCO														
Cigarettes	91.63	.74	.85	105.25	.75	92.88	.70	86.67	.74	91.63	.75	92.88	.75	92.88
Tobacco	8.37	.77	.79	8.59	.70	7.61	.70	7.61	.75	8.15	.60	6.52	.65	7.06
TOBACCO INDEX	100.00			113.8		100.5		94.3		99.8		99.4		99.9
ALCOHOL														
Beer	48.76	4.11	4.11	48.76	4.11	48.76	4.11*	48.76	4.27	50.65	4.56	54.09	4.11*	48.76
Liquor	51.24	6.70	6.70	51.24	6.70	51.24	6.70*	51.24	6.70*	51.24	6.70*	51.24	6.70*	51.24
ALCOHOL INDEX	100.00			100.00		100.00		100.00		101.9		105.3		100.00
* Flown in from Coose Bay through Friend														

CHAPTER IV

AVAILABILITY, CHOICE AND QUALITY CHANGE

1. Introduction

In attempting to measure interspatial differences in the cost of living, problems of availability, choice and quality differences of consumer goods and services become apparent. These problems arise from different consumer buying habits between Labrador communities and St. John's and even within Labrador itself, the contrasting environments and their effects on the types of goods and services consumed, and the remoteness of Labrador and the ensuing transportation problems.

As much as possible, these factors were taken into consideration when formulating the basket of consumer goods for Labrador and in gathering the price information. Only those goods that were available in Labrador and comparable to the St. John's basket were chosen for inclusion in the basket. It soon became apparent that in order to apply the St. John's pattern, certain modifications were required to reflect more adequately the consumption patterns of Labrador. When certain items in the St. John's consumption pattern were not available in Labrador, substitute goods were incorporated into the Labrador basket in an attempt to

maintain product comparability with the St. John's basket.

2. A Discussion of These Problems

With the exception of these methods outlined above, present price index theory is too rudimentary for measuring the effects of the unavailability of certain basic consumer goods, limited choice, and quality change of goods and services. This is not to imply that there are no methods yet constructed for dealing with these problems. Some theoretical models have been devised for dealing with problems of quality change but they involve large amounts of data and use of multiple regression analysis.¹ Using this method, each item is divided into four or five basic characteristics (for example, some characteristics of fresh vegetables would include: size, shape, taste, smell, etc.) and the amount of change is measured for each characteristic of the item to determine the overall quality change that occurred. Use of this method, to date, is confined to measures of changes in consumer durables like automobiles and houses where the main concern is measuring the rate of change of quality improvements or deterioration. It is not at all practical for measurements involving 160 or more elements, many of them food items.

¹Zvi Griliches, Price Index and Quality Change, p. 4; F.M. Fisher and K. Shell, The Economic Theory of Price Indices, p. 26.

For survey purposes, problems of unavailability and limited choice could be theoretically overcome. It is possible to secure prices for those items that are not available in certain communities in Labrador. This could be accomplished by having the items flown to these places by special air cargo planes and the transportation costs added to the basic price of the item. For example, milk, which is unavailable in coastal Labrador, could be flown in on a daily basis from the nearest available point. The cost per quart for transportation could be calculated and the additional charges added to the price of the milk. Theoretically, these prices could be obtained, but they would be impractical for two reasons: first, to include such items in the survey would not be representative of the Labrador consumption bundle. Secondly, the actual prices to the consumer would be so high that he would not buy any of these items; moreover, if the consumer did choose to buy at these higher prices, it would put him on a lower indifference curve and also force him to a lower level of welfare.

Interpersonal utility patterns aside, the modifications of the St. John's basket would tend to correct the upward bias in the cost of living which would happen if the St. John's pattern were uncritically imposed on Labrador. In other words, this is equivalent to a partial correction of the bias in the Laspeyres formulation of the cost of living.

In general, the choice of goods and services is fairly extensive in the urban areas of Labrador. Happy Valley and Labrador City have very few problems with regard to availability, variety and quality change of goods and services as compared to coastal communities. Most supplies are brought to Labrador City at all times of the year by rail from Seven Islands or by air from Montreal. Happy Valley has to rely on the coastal service for its supplies and must therefore stock up during the shipping season to last the whole winter. This does not present a great problem for Happy Valley as their warehousing facilities appear to be more than adequate. By comparison, local choice and availability of goods is more restricted in coastal Labrador communities, and the inconvenience of purchasing is much greater than in Happy Valley, Labrador City or St. John's.

With regard to food items in coastal communities, the unavailability of fresh milk has resulted in the use of powdered milk and tea as substitutes. Similar situations exist with regard to fresh fruit and vegetables in coastal Labrador. There is no local production and unavailability of good quality fresh fruit and vegetables has compelled people to use canned fruits and vegetables as substitutes. The problem is that all fresh produce is delivered by CN coastal boats that were never designed for carrying large quantities of perishable foods on long supply routes. In addition, the lack of warehousing facilities in most coastal

communities leads to the deterioration of the small volume of produce that does reach the consumer, and when it finally reaches him, the quality of the product has frequently deteriorated badly and often to the point where it is not fit for consumption at all.

Where good quality beef was not available a large portion of coastal people hunted caribou as a source of fresh meat during the year. A large percentage of families had deep freezers and therefore had access to a high quality fresh meat all year. However, hunting trips can be very expensive, as caribou herds are not as plentiful as reports might indicate. The trips are long (3-4 weeks) often taking them 100-200 miles from the coast. The cost of a trip can be extremely high when considering supplies, fuel, skidoo damage and bad weather. The caribou is seen not as a cheap source of fresh meat but as a necessary source of fresh meat, when all other sources run out.

One hunter in Makkovik reported that his hunting trip the previous year was an expensive as well as a traumatic experience. Besides the hardships he endured, when he totaled his expenses (skidoo repairs mainly) he estimated that his caribou meat cost \$65.00 per pound.

Another source of fresh food for coastal communities is from the sea. Many coastal men have their own boats as they are fishermen by trade. Although the Labrador fishery has not been that successful as a source of income to the

people, they do catch enough cod fish and Arctic char to supplement and add variety to their fresh food diet.

With regard to Household Operation, it was found that furniture and appliances were readily available in Happy Valley and Labrador City; there were no problems in the variety and choice of these types of items. On the coast, furniture and appliances are available only through mail order purchasing. Here, questions of variety, choice and inconvenience arise. Customers are restricted to the types and models available from the catalogue. Although prices of these items are competitive with St. John's, they do not have the convenience of being able to "shop around" for bargain prices or take advantage of sale prices. In addition, heavy appliance orders are shipped to Labrador by coastal boat. Orders have to be made during the shipping season which only lasts from July to October. Deliveries are very slow and the cost of air freight is too expensive to have it shipped any other way.

Similar comments apply to clothing as to Household Operation. Variety and quality of clothing items is quite extensive in Happy Valley and Labrador City. Coastal people have to rely on catalogue service for their clothing purchases, otherwise their choices are considerably restricted if they rely on local stores. Coastal people do not have the convenience of department store buying and therefore cannot take advantage of the variety and choices that are

available in larger centres.

Health care in coastal Labrador is less immediate and conveniently available than in St. John's. Each coastal community is serviced by a nursing station, with three small hospitals servicing the whole Labrador coast. Seriously ill patients are flown from these communities to the nearest hospital. Pickups could take days and even weeks if the weather is stormy. For this reason, in construction of price indices, the quality difference would be so great as to make the two services incomparable. As it turned out, however, these indices were constructed to ignore personal services in devising index numbers on the assumption that all medical costs were borne by the MCP. However, when considering the differences in quality of medical services, it might be asked fairly whether or not the inferior quality of medical care services provided to residents of coastal Labrador communities involves, in fact, the absorption of some of the cost by these residents. Consequently, these health indices, for the coastal Labrador settlements particularly, are understated; however, since health care involves relatively little weight, this would not greatly affect the overall cost of living comparison between the Labrador coastal communities and St. John's.

With regard to the recreational activities available in St. John's compared to Labrador, the choices were shown to be severely limited, especially in coastal communities.

As previously mentioned, television is not available to most parts of the coast. With the installation of the "Anik" satellite transmitter the coastal people assumed they would be able to have television in their communities. But a ground receiver station has to be installed in each community at a cost of \$16,000 before television can be transmitted. This, of course, rules out any immediate chance of getting television as most Labrador communities are not affluent enough to afford this expenditure.

Most of these problems outlined in the previous pages arise from circumstances that are peculiar to northern areas: the remoteness of the Labrador, the relatively small number of people, and the great distances involved in travelling and transporting between centres. It is theoretically impossible to assess in dollars and cents the additional costs arising from unavailability, limited choice and quality differences, and still maintain a degree of validity in the index. However, these problems do result in increased costs of living and entail added expense and inconvenience for the people of Labrador, and therefore must be given extensive consideration when assessing the true cost of living there.

CHAPTER V

SUMMARY AND CONCLUSIONS

This thesis attempted to measure the cost of living in Labrador and compare it with the cost of living in St. John's. The results of the study indicated that the cost of living was approximately 10-12 per cent higher in Labrador than St. John's. Of the seven different commodity groups which comprised the Labrador basket it was found that the transportation and household operation groups showed the highest indices; and, given the combined weights of these two groupings, points to the importance of energy in these cost of living differentials. By contrast, the one surprising result of the study was that the price levels of food-stuff were competitive with St. John's prices.

The methodology chosen for this study followed closely the one used by Statistics Canada in measuring the cost of living in remote northern areas of Canada. The methodology is a modified Laspeyres formulation. In this thesis, the position was adopted that as long as the methodological limitations were recognized, a cost of living comparison could be made in remote areas by using the available weighting patterns from a more southern urban area and applying it to the remote area with appropriate modifications. This procedure was used

in an attempt to preserve product comparability between urban and rural areas and, at the same time, to reflect the consumption pattern of the remote area.

While a comparative cost of living index was constructed for Labrador, it was found that the presence of certain methodological shortcomings in the application of index number theory required that the results be interpreted with some degree of caution. For example, differences in consumption patterns which exist between regions derive partially from such factors as geographic location and climatic contrasts. Interregional differences in consumer preferences have been generally dealt with, although only partially, by attempting to develop the expenditure pattern in the area where the cost of living is being compared rather than superimposing, without change, the base region expenditure pattern. Understandably, the size of the task precludes Statistics Canada from surveying the expenditure patterns of all the different groups of people in Canada. As a partial solution to this problem, researchers have adopted a method of using an expenditure survey from the base region as the pattern of consumer expenditures. Changes are made in the basket of goods and services and the weighting system to make it resemble more closely the expenditure pattern of the region being studied. These were the procedures employed in constructing the Labrador basket and weighting pattern.

Standard neo-classical formulation of cost of living theory points up the existence of serious analytical deficiencies that would be encountered if, the ~~the~~ John's weighting pattern were imposed on Labrador without alteration. The theory of index numbers assumes that preference patterns (whether temporal or spatial) remain unchanged over time and between distant points and that only relative prices and money prices actually change.¹ The theory points to the existence of an upward bias in the cost of living index. The empirical problem is to measure accurately the extent of this bias. However, coping with the problem of bias in the measurement of the cost of living between Labrador and St. John's, our problem is that of interpersonal comparisons of utility. Owing to the difficult, if not insoluble, problem of interpersonal utility comparisons, we cannot determine the true difference in the cost of living between Labrador and St. John's. Without a thorough knowledge of the St. John's and Labrador indifference maps and some means of comparing utilities, we can only make approximations to the differences in the cost of living by permitting the equivalent of commodity substitution through the construction of a basket which more closely reflects Labrador consumption.

This problem notwithstanding, by permitting product substitution in the Labrador basket, it is possible that the upward bias in the Laspeyres Index is reduced somewhat.

¹See for example, G.J. Stigler, The Theory of Price (New York: The MacMillan Co., 1950), pp. 82-84.

Compiling a Labrador basket and weighting pattern from the St. John's expenditure survey required many adjustments to make it reflect consumption patterns in Labrador. It was pointed out that a number of items in the St. John's expenditure pattern, such as fresh fruit, bus transportation, television and womens' hairstyling, had to be excluded from the Labrador pattern because they were not generally available in Labrador. At the same time, certain items which were not in the St. John's expenditure survey, such as winter Arctic parkas and snow boots, were required for the Labrador basket and had to be included. The number of adjustments that were required to compile a representative Labrador basket and weighting pattern were too numerous to list in detail. However, Chapter III detailed some of the more important modifications that had to be made. In essence, the nature of the problem in making these adaptations was the threat of damaging product comparability in the overall expenditure pattern. Therefore, a conscious effort was made to modify the St. John's expenditure pattern in such a way that product comparability was maintained where relevant.

On the other hand, perishable items shipped to isolated regions quite often undergo considerable deterioration in quality due to inadequate transportation and warehousing facilities. Although prices may have been similar in the two areas, it might be argued that the actual deterioration in quality of these goods is equivalent to a price increase.

The existing theory, although recognizing the presence of this problem, has not developed a method for accurately measuring this quality difference. To the extent that a shipment of perishable foodstuffs to Labrador undergoes deterioration compared to food items delivered in St. John's, this would tend to put a downward bias on the measured results of this thesis.

Some of the theoretical problems involved in the empirical analysis do suggest certain areas that might require improvement. In the remaining pages of this thesis, it would be appropriate to suggest some ideas that might alleviate these problems and might therefore provide future attempts to measure cost of living indices with more meaningful conclusions. The problems of non-comparability of consumption patterns, unavailability and limited choice of certain goods and services and the problems of quality differences are not unique to this Labrador study. These problems are common in any assessment of comparative living costs and especially in northern areas. It might be suggested, therefore, that the general framework for compiling cost of living index numbers for use in isolated regions, might be improved by making refinements to the theory in two areas: (1) improvements in reconstruction of the consumption-expenditure patterns of northern and isolated regions; (2) improvements in the measurement of quality change in cost of living studies.

(1) Owing to many of the previously mentioned problems originated from the unavailability of a consumption pattern for Labrador, the biggest assistance to this cost of living study would have been an expenditure pattern which reflected not only the consumption patterns of the Labrador people, but also the availability (or unavailability) and the variety and choices of goods and services in Labrador. This, of course, is not a solution that would work only in the Labrador study; any cost of living study undertaken for a remote northern region would benefit from the availability of a consumption pattern from that area. In the past, a Labrador consumption pattern has not been available and, as a result, centres outside the survey area have had to be chosen as the base for comparison.

It may also be suggested that a general consumption pattern might be constructed that could be used for many northern cities which had similar characteristics with respect to climate, income, population density and relative isolation. These procedures would not offer a perfect solution for existing methods, but it would probably afford improvements over existing methods including the methodology underlying the present study.

(2) The problem of allowing for quality change is probably the most difficult one faced by compilers of price indices, especially when these studies are being carried out in remote northern regions. Failure to allow for it when

quality is deteriorating, results in price indices which will be inaccurate and understate the true cost of living. The theoretical models which have been devised for handling this problem require large amounts of data and a multiple regression analysis of each item in the basket. This, of course, becomes impractical when measurements involve 300 to 400 items, as in the Consumer Price Index basket.

The means by which the problem of quality change can be favourably dealt with, depends upon the application of multiple regression techniques to large groups of items. Dhrymes¹ has attempted to provide an answer to this problem by constructing a "quality corrected" coefficient which would represent the quality change of a particular item in an index. From this coefficient, a "true" price could be calculated from the actual retail price. In the same manner, a "table of coefficients" might be constructed for all items in a consumer basket. The table could be used during the pricing survey to make quick and accurate corrections for quality change. This theory, however, is still only in its rudimentary stages--even the author admits that his analysis "leaves many issues unsettled."²

¹Phoebus J. Dhrymes, "On the Measurement of Price and Quality Change in Some Consumer Capital Goods," American Economic Review, Vol. 57 (1967), pp. 501-518.

²Ibid., p. 517.

Although these theoretical improvements could not be used in this thesis, attempts were made to compensate for these problems. First, this study devised a Labrador consumption pattern by using not an expenditure survey of Labrador, but by using a St. John's expenditure pattern with approximate modifications made. In this way, something approaching a Labrador consumption pattern has been achieved.

Secondly, by devising this consumption pattern, some compensation has been made incidentally for quality deterioration by permitting commodity substitution between Labrador and St. John's. For example, fresh fruits and vegetables were deleted from the Labrador basket because they were not generally available on the Labrador coast. However, such deletions were not done with a conscious effort to reconcile the problem of quality difference, but to devise a Labrador basket reflecting Labrador consumption patterns which, in part, reflect relative price differences that would result in the choice of canned for fresh fruit and vegetables.

This thesis has adopted standard procedures for measuring the cost of living between Labrador and St. John's. Although the methodology used in this thesis has attenuated some of the inherent theoretical problems in making cost of living comparisons, the theoretical difficulties have not been entirely overcome in this study. Since fundamental theoretical problems remain, the index numbers produced by this study must be interpreted cautiously.

BIBLIOGRAPHY

BIBLIOGRAPHY

BOOKS

- Bajpai, O.P.- Foundations of Statistics, Bombay: Asia Publishing House, 1967.
- Banerjee, Kali S. Cost of Living Index Numbers, New York: Marcel Dekker Inc., 1975.
- Blaug, M. Economic Theory in Retrospect, Illinois: Richard D. Irwin, Inc., 1962.
- Booth, Charles. Labour and Life of the People of London, London: Williams and Norgate, 1891.
- Chapin, R.C. The Standard of Living of Workingman's Families in New York City, New York: Charity Publication Committee, 1909.
- Community Council of Greater New York, Annual Price Survey 1968, New York: Community Council of Greater New York, 1963.
- _____, A Family Budget Standard, New York: Community Council of Greater New York, 1963.
- Cost of Living Advisory Committee, A Report on the Cost of Living, London: H.M. Stationery Office, 1951.
- Croxtan, F.E., and Cowden, D.J. Applied General Statistics, New Jersey: Prentice-Hall Inc., 1967.
- Davenport, H.J. The Economics of Alfred Marshall, New York: Cornell University Press, 1965.
- Fisher, F.M., and Shell, K. The Economic Theory of Price Indices, New York: Academic Press, 1972.
- Fisher, Irving. The Making of Index Numbers, New York: Houghton Mifflin Co., 1927.
- Gray, Alexander. The Development of Economic Doctrine, New York: John Wiley and Sons Inc., 1931.

- Griliches, Zvi. Price Indexes and Quality Change, Massachusetts: Harvard University Press, 1971.
- Hoyt, Elizabeth. American Income and Its Uses, New York: Harper and Brothers Limited, 1954.
- Karmel, P.H., and Polasek, M. Applied Statistics for Economists, Australia: Pitman Publishing Co., 1970.
- Keynes, J.M. A Treatise on Money, New York: Harcourt, Brace and Company, Inc., 1930.
- Mason, R.D. Statistical Techniques in Business and Economics, Illinois: Richard D. Irwin Inc., 1970.
- Mills, F.C. Statistical Methods, London: Sir Issac Pitman and Sons Limited, 1924.
- Mishan, E.J. Cost-Benefit Analysis, London: George Allen and Unwin Limited, 1971.
- Marshall, Alfred. Principles of Economics, 8th. ed., Toronto: MacMillan and Company Limited, 1966.
- Mitchell, W.C. The Making of Index Numbers, New York: SENTRY Press, 1915.
- National Industrial Conference Board, Cost of Living in New York City - 1926, New York: National Industrial Conference Board, Inc., 1926.
- Passaris, C. An Inquiry into the Cost of Living in Newfoundland vis a vis the Rest of Canada, unpublished Master's Thesis, Memorial University of Newfoundland, 1970.
- Pigou, A. C. The Economics of Welfare, London: MacMillan and Company Ltd., 1962.
- Rowntree, B.S. Human Needs of Labour, London: Thomas Nelson and Sons, 1918.
- Scientific Conference on Statistical Problems. The Standard of Living, Budapest: Akademiai Kiado, 1962.
- Stecker, M.L. Intercity Differences in Costs of Living, Washington: United States Printing Office, 1937.

Quantity Budgets for Basic Maintenance and
Emergency Standards of Living, Bulletin No. 21, Series I,
Washington: Works Progress Administration, 1936.

Stigler, George J. The Theory of Price, New York: The
Macmillan Company, 1950.

Tuttle, Alva, M. Elementary Business and Economic
Statistics, Toronto: McGraw-Hill Book Company Inc., 1957.

Ulmer, M.J. The Economic Theory of Cost of Living Index
Numbers, New York: AMS Press, 1968.

Vickrey, William S. Microstatics, New York: Harcourt,
Brace and World, Inc., 1964.

Viner, Jacob, Studies in the Theory of International Trade,
New York: Augustus M. Kelly, Publisher, 1965.

ARTICLES

Dhrymes, P.J. "On the Measurement of Price and Quality Change
in Some Consumer Capital Goods," American Economic Review,
Vol. 57, 1967.

Galatin, M. "A True Price Index When the Consumer Saves,"
American Economic Review, Vol. 64, 1973.

Hicks, J.R. "Consumers' Surplus and Index Numbers," Review
of Economic Studies, Vol. 9, 1942.

"The Four Consumers' Surpluses," Review of Economic
Studies, Vol. 9, 1942.

Holland, D.G. "Index Numbers of the Cost of Living,"
Bulletin of the Oxford University Institute of Statistics,
Vol. 12, 1950.

Lamale, H.H., and Stotz, M.S. "The Interim City Workers
Budget," Monthly Labour Statistics, 1960.

Orshansky, M. "Counting the Poor," Social Security Bulletin,
January, 1964.

Persons, W.M. "Fisher's Formula for Index Numbers," Review
of Economic Statistics, Vol. 3, 1921.

Seers, Dudley. "The Cost of Living," Oxford Bulletin,
Bulletin of the Oxford University Institute of Statistics,
Vol. 10, 1948.

.. "The Increase in the Cost of Living Since Before The War," Bulletin of the Oxford University Institute of Statistics, Vol. 11, 1949.

Stecker, M.L. "Family Budgets and Wages," American Economic Review, Vol. 11, 1921.

Triplett, J.E. "The Theory of Hedonic Quality Measurement and Its Uses in Price Indexes," Bureau of Labour Statistics, 1971.

GOVERNMENT PUBLICATIONS

Bureau of Labour Statistics, Handbook of Labour Statistics, Washington: United States Department of Labour, 1971.

Food and Drug Directorate, Department of National Health and Welfare, Health Protection and Food Laws, Ottawa: Queen's Printer, 1969.

Government of Newfoundland, Royal Commission on the Cost of Living in Newfoundland, St. John's: The Evening Telegram, 1950.

_____. Royal Commission on Labrador, St. John's, 1974.

_____. Royal Commission on Food and Drug Prices, St. John's, 1968.

_____. Royal Commission for the Preparation of the Case of the Government of Newfoundland for the Revision of Financial Terms of Union, St. John's, 1957.

National Bureau of Economic Research, The Price Statistics of the Federal Government.

Statistics Canada, Prices Division, The Consumer Price Index, Ottawa: Queen's Printer, 1969.

_____. City Family Expenditure, Ottawa: Queen's Printer, 1969.

_____. Prices and Price Indexes, Ottawa: Queen's Printer, 1972.

APPENDIX A
PRICING SCHEDULE

PRICING SCHEDULE

118

ITEMS	UNIT OF SALE	BRAND	RETAIL PRICE
FOOD			
DAIRY PRODUCTS			
MILK - FRESH	1 QT.	LOCAL BRAND	
EVAP.	16oz. TIN	CARNATION	
POWDERED	1 LB. PKG.	CARNATION	
COFFEE CREATOR	3 oz. BTL.	COFFEE MATE	
MARGARINE	1 LB.	GOOD LUCK	
BUTTER	1 LB.	MAPLE LEAF	
CHEESE (CHEDDAR)	12 oz. XXX	KRAFT - CRACKER BARREL	
ICE CREAM	1 PINT	BROOKFIELD	
EGGS	1 DOZ.	NFLD, GRADE A - EXTRA LARGE	
CEREAL PRODUCTS			
BREAD	24 oz.	LOCAL BRAND	
FLOUR	7 X LB.	ROBIN HOOD	
CORN FLAKES	12 oz. BOX	KELLOGGS	
SODA CRACKERS	16 oz. BOX	CHRISTIES	
CAKE MIX	19 oz. PKG.	DUNCAN HINES	
COOKIES (DIGESTIVE)	14 oz. BOX	SOCIAL TEA	
MACARONI & CHEESE	7 1/2 oz. BOX	KRAFT	
MEAT, FISH & POULTRY			
STEWING BEEF	1 LB.		
HAMBURGER BEEF	1 LB.		
RIB ROAST	1 LB.		
PORK CHOPS	1 LB.		
HAM	1 LB.	MAPLE LEAF - READY TO SERVE	
BACON	1 LB.	SWIFTS	
CHICKEN FRYER	1 LB.	GRADE A - 2-4LBS. SIZE	
COD FILLETS	1 LB.	SILVER SEA	
WIENERS	1 LB.	SWIFTS	
BOLOGNA	1 LB.	MAPLE LEAF	
SALT MEAT	1 LB.		
ROUND STEAK	1 LB.		
CANNED MEAT	1 LB. TIN	KAM	
SIRLOIN STEAK	1 LB.		
SAUSAGE	1 LB.	LOCAL BRAND	

ITEMS	UNIT OF SALE	BRAND	RETAIL PRICE
MISCELLANEOUS			
COFFEE	6 OZ. JAR	NESCAFE	
TEA	60 PAGES	RED ROSE	
SOFT DRINKS	EACH	ANY BRAND	
SUGAR	5 LB.	ANTIC SUGAR	
SOUP (VEG.)	10 OZ. TIN	CAMPBELLS	
MOLASSES	26 OZ. TIN	CROSBY'S	
JAM	9 OZ. JAR	KRAFT (STRAWBERRY)	
DRIED SOUP	4 OZ. PKG.	LIPTON	
PEANUT BUTTER	12 OZ. JAR	KRAFT (SMOOTH)	
CHOCOLATE BAR	EACH	ANY BRAND	
PICKLES	15 OZ. JAR	HABITANT - SWEET MUSTARD	
FRUIT (CANNED-DRIED)			
PEACHES	19 OZ. TIN	AYLMER - CHOICE	
PEARS	14 OZ. TIN	AYLMER - BARTLETT	
PINEAPPLES	19 OZ. TIN	KON TIKI - SLICED (CHOICE)	
FRUIT COCKTAIL	19 OZ. TIN	LIBBY'S	
APPLE JUICE	48 OZ. TIN	SCOTIA GOLD	
ORANGE JUICE	48 OZ. TIN	LIBBY'S	
RAISINS (DRIED)	15 OZ. PKG	SUN MAID - SEEDLESS	
PRUNES (DRIED)	1 LB. PKG	DEL MONTE - LARGE	
VEGETABLES (FRESH)			
POTATOES	10 LB. BAG	LOCAL BRAND	
CARROTS	1 LB. BAG	LOCAL BRAND	
CABBAGE	1 LB.	LOCAL BRAND	
ONIONS	1 LB. SACK	LOCAL BRAND	
TURNIPS	1 LB. BAG	LOCAL BRAND	
VEGETABLES (DRIED OR CANNED)			
PEAS	14 OZ. TIN	LYNN VALLEY	
CORN	19 OZ. TIN	YORK - CREAMED	
BEANS (PORK)	19 OZ. TIN	LIBBY'S - DEEP BROWN	
PEAS (DRIED)	1 LB. PKG.	AVION - SPLIT PEAS	
BEANS (DRIED)	1 LB. PKG.	STARNAUD	
FROZEN			
STRAWBERRIES	15 OZ. PKG.	BROOKFIELD	
PEAS	2 LB. PKG.	MCCAINS	
FRENCH FRIES	2 LB. PKG.	MCCAINS	

ITEMS	UNIT OF SALE	BRAID	RETAIL PRICE
HOUSEHOLD OPERATION			
FUEL & LIGHT			
FUEL OIL	PER GAL.	GENERAL PURPOSE FUEL OIL	
ELECTRICITY	1000 KWH.	PER MONTH	
FURNITURE (MAIL ORDER)			
BEDROOM SUITE (5pc)		EATONS - CATALOGUE No. W70-A4059E	
LIVING ROOM SUITE 7		EATONS - CATALOGUE No. F69-A2066C	
DINETTE SUITE (7pc)		EATONS - CATALOGUE No. W73-A0788E	
APPLIANCES			
REFRIGERATOR	UNIT	EATONS - CATALOGUE No. V59-A5704	
OIL RANGE	UNIT	EATONS - CATALOGUE No. V65-A3510	
WASHING MACHINE	UNIT	EATONS - CATALOGUE No. V57-A4304	
SUPPLIES			
DETERGENT (POWDER)	42oz. PKG.	TIDE	
DETERGENT (LIQUID)	24oz. BTL.	LUX	
BLEACH	32oz. BTL.	JAVEX	
FLOOR WAX	27oz. BTL.	FUTURE	
WAX PAPER	100FT. PKG.	CUT RITE	
TOILET PAPER	2 ROLL PKG.	PUREX	
PET FOOD	15oz. TIN	DR. BALLARDS	
METAL UTENSIL (F.PAN)	1 UNIT	6" FRY PAN (ALUMINUM)	
SERVICES			
TELEPHONE -LOCAL	PER MONTH	PRIVATE LINE BLACK PHONE	
TELEPHONE -LONG DISTANCE		CHARGE FOR FIRST THREE MINUTES	
POSTAGE, (TELEGRAM)	FIRST	25 WORDS	
INSURANCE, 3YR.	PREMIUM	\$10,000 ON HOUSE & CONTENTS	
CLOTHING			
MEN'S WEAR			
PARKA	EATONS	PAGE 451 ITEM 6	
WOOL TROUSERS	EATONS	PAGE 438 ITEM 1	
SPORT & WORK SHIRTS	EATONS	PAGE 465 ITEM 1	
SOCKS	EATONS	PAGE 394 ITEM 1	
UNDER SHIRTS	EATONS	PAGE 416 ITEM 3	
UNDER SHORTS	EATONS	PAGE 416 ITEM 3	
WOMEN'S WEAR			
PARKA	EATONS	PAGE 35 ITEM H	
WOOL DRESS	EATONS	PAGE 57 ITEM E	

ITEMS	UNIT OF SALE	BRAND	RETAIL PRICE
TRANSPORTATION			
AUTO			
GASOLINE	1 GAL.	REGULAR GASOLINE	
OIL	1 QT.	10W/30 MOTOR OIL	
BATTERY -12 VOLT	1	MEDIUM PRICE	
OIL FILTER	1	SPIN-ON TYPE	
SPARK PLUG	EACH	CHAMPION	
INSURANCE PL/Pd	PREMIUM	FULL COVERAGE	
TIRES 7.75 X 14 -4PLY	EACH	GLASS-BELTED WHITEWALL	
SKIDOO OR BOAT			
GASOLINE	1 GAL.	REGULAR GASOLINE	
OIL	1 QT.	REDI-MIX	
SPARK PLUG	EACH	BOSCH	
DRIVE BELT	1	1973 SKIDOO ELAN	
SKI	1	1973 SKIDOO ELAN	
BEYOND DISTANT TRAVEL			
BEYOND DISTANT TRAVEL			
BEYOND DISTANT TRAVEL			
PLANE (BEYOND)		FARE FROM LABRADOR COMMUNITIES TO HALIFAX	
BEYOND DISTANT TRAVEL			
RECREATION			
RECREATION			
RADIO		EATON'S PAGE 770 ITEM 2	
CAMERA FILM B/W		KODAK 126 CARTRIDGE	
RECORD PLAYER	EATON'S	CATALOGUE No. C50-A1260	
MONOPOLY GAME			
PLAYING CARDS			
READING			
NEWSPAPER	1 YR. SUBS.	EVENING TELEGRAM	
MAGAZINE	1 YR. SUBS.	READERS' DIGEST	
TOBACCO & ALCOHOL			
TOBACCO			
CIGARETTES	20 PKG.	ROTHMANS	
TOBACCO	1 1/2 OZ. PKG.	AMPHORA PIPE TOBACCO	
ALCOHOL			
BEER	1 DOZ.	LOCAL BRAND	
LICUPE	25 2X OZ. BTL	CAPTAIN MORGAN RUM (DARK)	

APPENDIX B

EXPLANATORY NOTES TO THE CALCULATIONS.

EXPLANATORY NOTES TO THE CALCULATIONS

'PRICE IN ST. JOHN'S'

This is the price collected, in St. John's, for each product or service. It acts as the divisor in all "price relative" calculations.

'PRICE'

This represents the price collected in each designated centre in Labrador. It acts as the dividend in all "price relative" calculations.

'PRICE RELATIVE'

This number expresses post price as fraction of the St. John's price.
i.e. $\text{Price Relative} = \frac{\text{Post Price}}{\text{St. John's Price}}$

'WEIGHT'

This is a number taken from the Statistics Canada "Pattern of Consumer Expenditures Survey for St. John's" which expresses, as a percentage, the relative importance of each item to the total "basket" of goods and services.

'WEIGHTED PRICE RELATIVE' (WPR)

This number expresses the post price in terms of index numbers; it is not a percentage figure and is calculated:
 $\text{Weighted Price Relative} = \text{Price Relative} \times \text{Weight}$

'AGGREGATE' (AGG)

This number expresses the subgroup index numbers in terms of main group index numbers.
 $\text{Aggregate} = \text{Weight} \times \text{Subgroup index}$

APPENDIX C

BREAD BASKET INSTRUCTIONS

Base City:

EXAMPLE St. John's, Newfoundland.

1. Find the cost of 100 lbs. of flour in St. John's

Cost of 1 lb. = .117

Cost of 100 lbs. = \$11.70

2. Calculate the flour factor:

$$\frac{\text{Cost of 100 lbs. of Retail Flour}}{\text{Cost of 100 lbs. of Industrial Flour}} = \frac{11.70}{6.96} = 1.68$$

Therefore: the flour factor is 1.68

3. Calculate the cost of a home-baked loaf of bread: FLOUR FACTOR X
-
- COST OF INDUSTRIAL LOAF OF BREAD (4.5 is an industrial loaf of bread)
-
- + POWER

POWER = .1¢

1.68 X 4.5 = 7.56

Power $\frac{1.00}{8.56¢}$ Therefore the cost of a home-baked loaf of bread in St. John's is
8.56¢ or 9¢ (rounded)

Work the same for Post (example Cartwright)

1 lb. = .1500

100 lbs. = \$15.00

$$\frac{15.00}{6.9} = 2.13 \text{ (factor)}$$

4.5 X 2.13 = 9.58¢

Power $\frac{1.0¢}{10.58¢}$

4. Take the post cost of a home baked loaf and divide it by the base cost
-
- of a home baked loaf to get relative.

$$\frac{10.58 \text{ (Cartwright)}}{8.56 \text{ (St. John's)}} \times 100 = 1.23 \text{ relative.}$$

