Rethinking Shelter-Cost-to-Income Ratios in Housing Allowances

by

Lara Eleanor Croll

B.A. (Economics), University of British Columbia, 2012

Project Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Public Policy

in the
School of Public Policy
Faculty of Arts and Social Sciences

SIMON FRASER UNIVERSITY

Spring 2015

Approval

Name:	**Lara Croll**
Degree:	**Master of Public Policy**
Title:	***Rethinking Shelter Cost to Income Ratios in Housing Allowances***
Examining Committee:	**Chair:** Dominique M. Gross Professor, School of Public Policy, SFU

J. Rhys Kesselman
Senior Supervisor
Professor

Joshua Gordon
Supervisor
Assistant Professor

Doug McArthur
Internal Examiner
Professor

Date Defended/Approved: March 24, 2015

Partial Copyright Licence

Abstract

The Canadian definition of housing affordability depends on a ratio, which states that housing is affordable if it costs less than 30% of gross household income. This ratio is used to determine both eligibility and benefit levels in many Canadian affordable housing programs, including social housing and housing allowances. However, this ratio is not a methodologically sound or equitable way to define housing affordability. The result is that affordable housing programs underserve large families living in high-rent urban regions. This study searches for an alternative method to define eligibility and allocate benefits within provincial housing allowances. British Columbia's *Rental Assistance Program* is used to illustrate the application of concepts and measures. Four eligibility and two benefit allocation methods are evaluated. It is recommended that provincial housing authorities adopt Housing Income Limits and the Transfer method to determine eligibility and allocate benefits respectively in housing allowances targeted at families.

Keywords: Housing Allowances; Shelter Allowances; Housing Affordability; Shelter Cost to Income Ratios; Residual Income; Rental Assistance Program

Acknowledgements

I would like to express my graduate to staff and faculty of the School of Public Policy for this formative experience. Special regards go to my supervisor J. Rhys Kesselman for his support, guidance, and, of course, enthusiasm for commas. I also cannot thank Doug McArthur enough for his thoughtful and challenging critique during my defense.

I am also extremely grateful for the spirit and dedication of my classmates; you have each taught me something unique, and I cannot imagine this program without you. In particular, I would like to express my gratitude to Vanessa LeBlanc, Sukhraj Sihota and Jordan Westfall; I admire your passion and persistence, and I'm extremely lucky to have your friendship.

Table of Contents

List of Tables

List of Figures

List of Acronyms

Term	Initial components of the term (examples are below)
CCTB	Canada Child Tax Benefit
CMHC	Canadian Mortgage and Housing Corporation
HIL	Housing Income Limit
METR	Marginal Effective Tax Rate
NCBS	National Child Benefit Supplement
NOS	National Occupancy Standards
RAP	Rental Assistance Program (BC)
RI	Residual Income(s)
RGI	Rent Geared to Income
SAFER	Shelter Aid for Elderly Renters (BC)
STIR	Shelter-Cost-to-Income Ratios

Glossary

Term	Definition
Affordable	The CMHC defines “affordable” dwellings as costing less than 30% of total before-tax household income. For renters, shelter costs include rent and any payments for electricity, fuel, water and other municipal services. For owners, shelter costs include mortgage payments (principal and interest), property taxes, and any condominium fees, along with payments for electricity, fuel, water and other municipal services.
Adequate	Adequate housing are reported by their residents as not requiring any major repairs. Major repairs include those to defective plumbing or electrical wiring, or structural repairs to walls, floors or ceilings.
Suitable	Suitable housing has enough bedrooms for the size and make-up of resident households, according to National Occupancy Standard (NOS) requirements.
BC Housing	Crown Corporation established in 1967 to carry out the BC provincial government’s housing strategy.
Canadian Mortgage and Housing Corporation	The CMHC is the Crown Corporation responsible for housing within Canada. The CMHC reports to the Parliament of Canada through a Minister and is governed by a Board of Directors. The Board of Directors is responsible for managing the affairs of the Corporation and the conduct of its business in accordance with the Canada Mortgage and Housing Corporation Act, the Financial Administration Act, and the National Housing Act.
Core Housing Need	The CMHC defines a household is said to be in “core housing need” if its housing falls below at least one of the adequacy, affordability, or suitability standards and it would have to spend 30% or more of its total before-tax income to pay the median rent of alternative local housing that is acceptable (meets all three housing standards). Regardless of their circumstances, non-family households led by maintainers 15 to 29 years of age attending school full-time are considered to be in a transitional stage of life and therefore not in core housing need.
Housing Allowances	A housing allowance is a demand-side public housing program that allocates in-kind benefits directly to low-income households in the private market. The benefit is usually provided in the form of cash, but is in-kind in the sense that it changes the price of shelter relative to that of other goods. Also referred to as shelter allowances, housing vouchers, rent allowances.

Rental Market Vacancy Rates	A unit is considered vacant if, at the time of the survey, it is physically unoccupied and available for immediate rental.
Rental Market Availability Rates	The CMHC defines a unit as ‘available’ if the existing tenant has given, or has received, notice to move, and a new tenant has not signed a lease, or the unit is vacant.
Rental Supplements	Rent supplements are a supply-side program where a housing authority contracts a landlord directly to subsidize a given number of units for low-income tenants.
Rent Geared to Income	A benefit allocation method used in Canadian social housing programs, where the minimum contribution for rent by the recipient household is tied to their income. This is an implicit housing allowance.
Shelter Allowances	See Housing Allowances
STIR	The Shelter-Cost-to-Income Ratio expresses housing expenditures as a ratio of household gross income.

Executive Summary

The rental housing market is a topic of heated debate in many large urban centres, with criticism focusing on a relative lack of *housing affordability*. In Canada, housing is considered affordable if it costs no more than 30% of before-tax household income. This definition of affordability, called the 30% shelter cost-to-income ratio (STIR), guides Canadian public policy by measuring the depth and breadth of affordability problems, as well as determining both eligibility and benefit levels in many provincial housing allowances. Thus, the 30% STIR is used both as a proxy measure for housing need and as a rationing mechanism for public funds.

However, the use of the 30% STIR in this context is highly problematic. The 30% cut-off is arbitrary, unsupported by any scientific or empirical evidence, and chosen solely to reduce the federal government's social housing obligations. Furthermore, under the 30% STIR, it is possible for a low-income household to be consuming very little of shelter or other goods, and yet to have rents that are considered affordable. This is because shelter cost-to-income ratios fail to logically consider a household's need to consume both shelter and other essentials in order to maintain an adequate standard of living.

Thus, the policy problem addressed by this study is that the use of the 30% STIR to allocate housing subsidies is inappropriate, because the ratio inequitably identifies and addresses housing affordability burdens for low-income households. Specifically, the 30% STIR underserves large families with many dependents, urban households, and people living in shelter that is either physically inadequate or overly crowded. Therefore, the objective of this study is to find a more methodologically sound definition of housing need in order to improve the equitable allocation of housing subsidies. However, this study argues that the most *useful* definition of affordability will depend on the context of the housing program within which it operates. This study analyzes the 30% STIR and three alternative definitions of affordability within the design, objectives, and fiscal constraints of an existing housing allowance, called the BC *Rental Assistance Program*. This study is guided by three research questions: (1) What is the most methodologically

sound definition of affordability? (2) What is the most useful definition of affordability for allocating housing subsidies? and (3) Are these definitions consistent? Do any practical considerations make it unreasonable to use the most valid definition when administering public housing benefits?

This study finds that from a public policy perspective, the most conceptually sound definition of affordability for low-income households is the Residual Income approach, which considers shelter affordable if, after paying for rent on an appropriate unit, a family has enough income left over to consume a modest basket of essential goods. For public policy purposes, this definition of affordability should replace the 30% STIR as the Canadian Mortgage and Housing Corporation's definition of affordability.

However, the Residual Income method is difficult to operationalize in the context of provincial housing allowances without disqualifying a large number of moderate-income households, including many large families with many children. Thus, this study finds that the most *useful* way to determine program eligibility is with Housing Income Limits. Housing Income Limits represent the income required to purchase the median rent of an appropriately sized unit within a given community for no more than 30% of gross household income. While not as conceptually sound as the Residual Income method, HILs are the most equitable measure of affordability as they are best able to include large families, urban households, and people living in inadequate and unsuitable shelter.

This study also finds that the benefit allocation method used with housing allowances should reflect the cost of an adequate standard of living. Thus, housing authorities should allocate subsidies based partially on the difference between the cost of a modest basket of non-shelter goods and a household's residual income. The only exception to this is for households with implicit affordability problems— such as those that would have high shelter burdens if they were not living in housing that is dilapidated or overly crowded. In this case, housing authorities should allocate subsidies based on a cost standard rather than the household's actual shelter expenditures.

The findings of this study have implications for all provincial housing allowance programs with designs and objectives similar to the BC Rental Assistance Program. This

study also suggests that future research should consider the unintended consequences of using the 30% STIR to determine eligibility and allocate benefits in social housing and rental supplement programs. This is imperative if Canada wants to return to its former status as a nation known for the strength and fairness of our social housing policies.

Chapter 1. Introduction

The rental housing market is a topic of heated debate in many large urban areas, with criticism focusing on a relative lack of housing *affordability*. The concept of affordability is concerned with the idea that people should be able to secure a given standard of shelter at a rent which does not impose an unreasonable burden on household incomes (Maclennan & Williams, 1990, p. 9). In Canada, shelter is defined as affordable if it costs less than 30% of before-tax household income (Canadian Mortgage and Housing Corporation, 2014). Thus, a renter household is described as having an affordability problem when it pays more than 30% of its household income to obtain an adequate and appropriate dwelling. This measure of affordability, called the 30% Shelter Cost-to-Income Ratio (STIR), determines both eligibility and benefit levels in many affordable housing programs, including social housing, rental supplements, and housing allowances. In this context, the 30% STIR is used both as a proxy measure for housing need and as a rationing mechanism for public funds.

However, use of the 30% STIR in this context has been criticized as an arbitrary measure of affordability. The federal government first adopted the 30% rule of thumb in order to reduce social housing subsidies: it is estimated that this change cut the number of households eligible for social housing in half and reduced subsidies by approximately $76 million (Hulchanski, 1995; Van Dyk, 1993). Normative values about the role of government in providing housing assistance motivated this policy shift, rather than any empirical evidence about the extent of affordability problems (Hulchanski, 1995, p. 481)

Furthermore, shelter-cost-to-income ratios fail to consistently identify which households have affordability problems. STIRs manifest four principal flaws. First, the affordability of shelter depends on household income – the lower your income, the less you can afford to spend on shelter. This is because proportionately more of your income must be spent on other essentials, such as food, clothing, and transportation. Yet under

the 30% STIR, “it is possible for individuals to be consuming very little of either housing or other goods and for their housing costs still to be considered affordable” (Hancock, 1993, p. 133). Conversely, a moderate-income household may be consuming more than a minimum standard of both shelter and non-shelter goods, yet deemed by the ratio approach to be living in an unaffordable situation.

Second, need for housing support varies by household size and composition. While there are considerable economies of scale in housing, larger households generally need more rooms to accommodate their greater numbers. This means that, holding income constant, large households tend to spend proportionately more on shelter than small households do. Yet large households also have a greater need for non-shelter essentials as well. Thus, the 30% STIR “understates the [affordability gap] for families with children and other large families versus one and two-person households” (Kutty, 2010, p. 118).

Third, the affordability of housing varies regionally. On average, shelter in large urban areas is more expensive than in rural regions. In particular, the cities of Vancouver, Toronto, and Calgary have high average rents and low rental vacancy rates, due in part to an inadequate stock of low-cost rental stock (Canadian Mortgage and Housing Corporation, 2013). This means that low-income urban households have less choice in the quality and quantity of shelter that they consume than rural households do. On the other hand, rural households may have to pay more for other budgetary essentials, such as personal transportation, and therefore may be able to devote fewer resources to shelter consumption. Overall, regional variations in affordability are both important and complex.

Finally, the 30% STIR is unable to account for other housing problems, such as physical inadequacy or crowding. This means that the 30% STIR is unable to capture those households have that *implicit* affordability problems – i.e. those households that would have high shelter burdens if they were not living in shelter that is physically inadequate or overly crowded. This is problematic because these households are at greater risk for poverty and housing instability.

1.1. Policy Problem

Given this background, the policy problem that this study addresses is that the use of the 30% Shelter Cost-to-Income Ratio to allocate housing subsidies is inappropriate because it inequitably identifies and addresses housing affordability burdens for low-income households. Specifically, the 30% STIR under-diagnoses affordability problems for large households with many dependants, urban households in high-rent regions, and households living in physically inadequate or overly crowded shelter.

The objective of this study is to find a more equitable way to design affordable housing programs. Of central focus will be the use of the 30% STIR as compared to alternative affordability definitions for determining both program eligibility and benefit allocation. Since housing programs and policies are "inevitably shaped by factors other than the conceptual clarity of the affordability standard, such as potentially perverse incentives, fiscal constraints, and political interests, among others," the most useful definition of affordability will always depend on the design, objectives and budgetary constraint of the housing program within which it operates (Stone, 2006, p. 153). Thus, my study proposes to illustrate the application of concepts and measures by analyzing alternative affordability standards in the context of an existing affordable housing program, while holding its program expenditures constant. This is to demonstrate that the same amount of funds can be allocated more equitably by changing the definition of what is, and is not, affordable.

The program that I use to illustrate these concepts is the British Columbia's *Rental Assistance Program (RAP)*, a housing allowance for low-income, working families in the private rental market. This program is illustrative because it is a classic Canadian housing allowance program, and thus the results from my analysis may be extrapolated to similar programs.

Further discussion of my methodology, including my research questions, data sources, and research limitations, is presented in Chapter 2. Chapter 3 presents an in-depth analysis of the 30% STIR, as well as alternative definitions and measures of affordability, and their strengths and weaknesses. Chapter 4 explains the objectives of

housing allowance programs, thus providing clarity about the practical considerations that must be considered when evaluating the advantages and disadvantages of affordability measures. Particular attention is given to explaining how the Rental Assistance Program's use of the 30% STIR prevents its program objectives from being fully realized. Chapter 5 presents alternative affordability measures that have the potential to address the inequities currently created by the 30% STIR. These alternatives are analyzed as policy sets that comprise both eligibility and benefit allocation methods. The criteria and measures used to analyse the policy sets are presented in Chapter 6, while Chapter 7 presents this analysis. Chapter 8 and 9 present my policy recommendation and conclusion.

Chapter 2. Methodology

2.1. Research Questions and Methodology Overview

The objective of this study is to find a more equitable definition, and corresponding measure, of affordability to determine both eligibility and benefit levels within housing allowance programs. In order to achieve this objective, three research questions guide this study:

1. When defining housing need as a public policy problem, what is the most methodologically *valid* definition of affordability? How is this best measured?
2. When administering public housing benefits, what is the most *useful* definition of affordability to determine eligibility and allocate benefits? How is this best measured?
3. Are these definitions (and measures) consistent? Do practical considerations make it unreasonable to use the most valid definition when administering public housing benefits?

The methodology used to address these research questions is comprised of three components, the first of which is a literature review. The literature review identifies the methodological strengths and weaknesses of Canada's current approach to defining and measuring affordability, as well as alternative definitions of affordability. Best practices to measure these concepts in the Canadian context are discussed. Given the evidence presented here, an answer for the first research question is proposed.

Answering the remaining research questions is a two-step process. The first step is to estimate relevant statistics, such as the number of eligible households and the average size of the benefit, under alternative definitions of affordability. This allows for comparisons with status quo. Then using these estimates, the status quo and its alternatives are analyzed based on their ability to achieve four social and administrative objectives within the context of the Rental Assistance Program. Finally, the results from this analysis are extrapolated to similar housing allowance programs in Canada.

2.2. Quantitative Estimates

2.2.1. Assumptions of the Static Cost Method

The estimates used in my analysis are achieved using a *static cost method*. Housing authorities use the static cost method to estimate the cost of potential housing allowance programs in a given year, assuming that "behaviour in the housing market is unaffected by the allowance" (Steele, 1985b, p. 6). Housing authorities use the assumption of unchanged household behaviour because evidence from provincial housing programs suggests that the demand response to these programs is quite small. "Indeed, the stagnant level of mean benefits in nominal dollars is convincing evidence that these housing allowances have had little effect on housing consumption or on the rent setting of landlords" (Steele, 2007, p. 77).

Steele explains that the other type of cost estimate, which "attempts to take into account [the] behavioural response and feedbacks from the rest of the economy," is called a simulation study or *dynamic cost estimate* (1985b, p. 6). Simulation studies are inherently difficult to do because of the complicated benefit allocation method used in Canadian housing allowances, and the nature of the assumptions that must be made about household and landlord behaviours in response to the allowance. The result has been that the dynamic cost method tends to produce cost estimates that are substantially higher than the static cost method Indeed, the strongest evidence against the use of dynamic cost estimates is the record of existing provincial programs, which have had tightly controlled program expenditures since they were introduced in the 1980s (Steele, 1985b, p. 11). This is incongruent with the cost estimates produced by the dynamic method.

Thus, my quantitative estimates assume little or no change in behaviour caused by alternations to eligibility or benefit allocation criteria. Specifically, I assume that the Rental Assistance Program's participation rate among eligible households is exogenous, and remains constant at 55% at all income levels and across all affordability

alternatives[1]. This participation rate is similar to those in other Canadian housing allowance programs (Steele, 1985b, p. 28, 1995). My analysis also assumes that landlord behaviour remains largely unaffected by changes in the subsidization rates (i.e. there is little or no rent inflation). This assumption is based on empirical evidence that suggests that small-scale housing allowances paid directly to low-income tenants, generate little rent inflation (see Chapter 4 for further discussion).

2.2.2. Status Quo Estimates

Using the simplifying assumptions discussed in the previous section and the Survey of Household Spending as a sample of the BC population[2], I estimate the number of eligible households and the average benefit size for the Rental Assistance Program. In this sample, households are determined to be eligible for the benefit if they meet the following eligibility criteria from RAP: (1) they are a renter household; (2) their rent is not subsidized by the government through an alternative housing or income maintenance program; (3) they have at least one dependant child under the age of 19; (4) their gross household income is $35,000 or less; (5) their gross shelter-cost-to-income ratio is 30% or higher[3]; and (6) at least some of their gross household income is from employment. Using this methodology, I estimate that approximately 27,000 low-income working families were eligible for RAP in 2009.

Each eligible household is then allocated a benefit. Benefit entitlements are calculated using a formula that imitates the one used by BC Housing's Rental Assistance Program, which subsidizes part of the difference between a household's

[1] Programs like RAP, which require households to submit an application in order to be eligible for benefits, never have 100% participation rates (Howenstine, 1983).

[2] Certain households have been removed from this sample. As in Nepal, Tanton and Harding (2010), households with gross incomes equal to or less than zero have been removed. They report that the expenditure of such households is "often similar to that of households earning much more, and therefore incomes are considered an unreliable guide to a household's standard of living" (Nepal, Tanton, & Harding, 2010, p. 215). Similarly, households flagged by the SHS's AFFORDAB indicator have been removed. These households have consumption patterns that are well in excess of their incomes, and therefore their incomes are not a reliable guide to their standard of living (Finkel et al, 2006, p. 117).

[3] Where their shelter costs are defined as their monthly rent plus $50 for heat.

eligible rent and 30% of their gross household income. This is called the *partial income gap method* (referred to simply as the gap method herein), as given by:

$$BE = \lambda \times ([\min (R^*, R)] - \alpha Y)$$

where alpha (α) is the affordability standard (i.e. the 30% STIR), R is actual shelter expenditure, R^* is the maximum subsidized shelter cost, Y is gross household income, and λ is the subsidization rate. In BC's RAP, the subsidization rate decreases as household income increases, so that households with low incomes receive much larger benefits than households near the income cut off. Under RAP, the subsidization rate ranges from a high of 95% to a low of 35% (see Figure 4.2). Using this methodology, I estimate that the average benefit size under the status quo is $335[4].

The value of each household's estimated annual benefit is summed to get the program's projected total expenditures – nearly $100 million. However, information from BC Housing suggests that RAP's actual program expenditures are closer to $55.0 million annually[5]. Thus, to keep my estimates in line with the way that the housing allowance actually works, I assume that only 55% of households eligible for RAP participate in the program. Thus, I estimate that of the 27,000 low-income working families eligible, only 15,000 actually receive benefits (see Table 2.1).

Table 2.1 Estimates for the RAP Status Quo

Policy	Eligible Households	Recipient Households	Average Benefit Size	Participation Rate	Total Program Expenditures (millions)
Status Quo	27,200	15,200	$335	55%	$55.0

[4] This is somewhat smaller than the average benefit size reported by BC Housing for the Rental Assistance Program, which was $379 as of 2014. This is likely due to the limitations of my sample (see Chapter 2.3).

[5] BC Housing reports that the total program expenditures for RAP and SAFER were $75.8 million in 2009, but does not report the program expenditures for RAP alone. Given the number of recipient households and the average size of the benefit (which was $379 per month as of 2014), I estimate that RAP had program expenditures of approximately $55.0 million 2009. This is only an estimate, but since the expenditure constraint is used to demonstrate how affordability definitions and measures perform *relative* to each other, this is largely immaterial.

Source: Survey of Household Spending (2009)

2.2.3. Estimates for Alternative Definitions of Affordability

A similar methodology is used to estimate statistics for alternative affordability definitions. Here, households are designated as eligible for the allowance if they meet the following eligibility criteria from RAP: (1) they are a renter household; (2) their rent is not subsidized by the government; (3) they have at least one dependant child under the age of 19; and (4) they have income from employment. Additional eligibility criteria, depending on the policy option, include the household's adjusted STIR, their Residual Income, and/or whether their household income is below the local Housing Income Limit. Chapter 3 explains these concepts; while the methods I use to operationalize these concepts are explained in detail in Appendix A.

Here benefits are allocated using two different benefit allocation methods: the partial income gap method presented earlier, and an alternative method called the partial income transfer method. The partial income transfer method (referred to as simply the transfer method herein) subsidises part of the difference between the cost of a modest basket of non-shelter goods, and a household's income after paying for rent. This is given by:

$$BE = \lambda \times (NS - [Y - (\min (R, R^*))])$$

where R is actual shelter expenditure, R^* is the maximum subsidized shelter cost, Y is disposable household income, and NS is the cost of a modest basket of non-shelter goods. As before, λ is the subsidization rate, which decreases as household income increases. However, under these alternative policy sets, the subsidization rate is allowed to increase, so that as the number of households eligible for the program decreases, the size of the entitlement increases.[6] Thus by varying only the number of eligible

[6] Another way to achieve this would be to allow the affordability standard to vary between policy options. For example, if the number of households eligible for the policy decreased, the affordability standard could be reduced to 20%, so that the benefit covered a larger portion of the affordability gap. However, this has the problematic outcome of disproportionately allocating the increases in benefit levels to higher income households. Thus, this method was discarded.

households and the subsidization, the total cost of the program is held constant at $55.0 million. Again, this is unlikely to be an exercise undertaken in practice by a housing authority – instead, this is an academic exercise to demonstrate how using different eligibility and benefit allocation methods (based on alternative definitions of affordability) can be used to differentially allocate a given sum of money.

2.3. Methodology Limitations

The methodology used in my study is illustrative because it allows housing affordability definitions and measures to be tested in the context of a functional housing allowance program, thus allowing policy makers to weigh methodological validity against practical trade-offs. However, there are several limitations to my methodology, including sampling problems, simplifying assumptions, and generalizability.

2.3.1. Sample Limitations

The sample of British Columbia that I use in this study is the 2009 Survey of Household Spending. This survey is used because it contains detailed information on household characteristics, including housing expenditures[7]. However, this sample has several limitations. First, surveys in general systematically under sample low-income households. This is limiting for my study because it changes the number and income-composition of eligible and recipient households.

Second, this survey excludes three populations: (1) residents in institutions; (2) members of Canadian Forces living in military camps; and (3) people living on Indian reserves (Statistics Canada, 2015). Statistics Canada estimates that these exclusions make up approximately 2% of the population in all ten provinces, though this might be slightly higher in my sample (which is limited to British Columbia) because First Nations Peoples make a higher proportion of the population in BC than the Canadian average. This is problematic for my study because First Nations Peoples, who are often mobile

[7] Alternatively, the 2011 National Household Survey could have been used if it had been available.

and may be travelling to and from reserves on a regular basis, are overrepresented in experiences of housing instability, homelessness, and affordability problems (Patrick, 2014). Therefore, my study may underestimate the number of eligible households in a systematic way.

Finally, the SHS fails to report three pieces of key information: the household's total asset level, how long the households have been residents of BC, and whether or not the household is accessing income assistance. Due to these omissions, I am unable to eliminate households that do not meet RAP's asset limits, residency requirements, or restrictions on income sources. Therefore, the households that I estimate to be eligible under the status quo and its alternatives are likely to be overestimates[89]. Due to these limitations, these numbers should be evaluated relative to each other, rather than in absolute terms.

2.3.2. Limiting Assumptions

As previously stated, I have assumed a constant 55% participation rate across affordability definitions, and across income levels. While an average participation rate of 55% is in consistent with the empirical evidence from the RAP program and similar housing allowances, the assumption of a participation rate that is constant across income levels is likely a flawed one. In reality, households with lower incomes likely participate at higher rates than those with moderate incomes. However, this assumption is needed in the absence of any substantive empirical information on how participation rates vary with income levels or prospective benefit rates.

[8] However, the SHS does report if households have government-subsidized housing. Since most households accessing BC income assistance receive a modest allowance for shelter, it may be that by excluding these households from eligibility, I have indirectly eliminated all these ineligible households.

[9] However, it may be that there are relatively few households in my sample that have cash assets greater than $100,000 but gross household income of $35,000 or less.

2.3.3. Generalizability

Finally, other factors may decrease the generalizability of my findings to other affordable housing programs (especially outside of Canada), such as differences in scope, target populations, objectives, and fiscal constraints. Thus, the findings of my analysis are best applied to similar housing allowance programs operating in Canada, such as the current programs in Alberta, Saskatchewan, and Manitoba. More research is needed to study the practical implications of the use 30% STIR in social housing and rent supplement programs in Canada.

Chapter 3. Defining Housing Affordability

3.1. Shelter Cost to Income Ratios

Affordability definitions are an important policy tool for identifying depth and breadth of affordability problems. This allows policy makers to focus limited funds on households that have the greatest need. In Canada, households are defined as being in *Core Housing Need* if their shelter fails one of three standards:

1. **Adequacy**: shelter is not in need of any major repairs
2. **Suitability**: shelter has enough bedrooms for the size and composition of the household's residents
3. **Affordability**: shelter does not cost more than 30% of gross household income *and* the household would have to spend more than 30% of its gross household income to pay the median rent of alternative local shelter that meets all three standards (Canadian Mortgage and Housing Corporation, 2011b).

The CMHC reports that of the 1.5 million Canadians that are in Core Housing Need, 73% have only an affordability problem, while only 5% and 4% report physical adequacy and suitability problems respectively (see

Table 3.1Table 2.1). Obviously, the 30% Shelter Cost-to-Income Ratio is an integral component of how we identify and address housing problems in Canada.

Table 3.1 Characteristics of Households in Core Housing Need in Canada (2011)

Standard	All Households	Renters	Owners
Affordability only	73%	72%	75%
Suitability only	4%	5%	3%
Adequacy only	5%	3%	8%
Multiple standards	17%	19%	14%

Source: Canadian Mortgage and Housing Corporation, 2011a

As a measure of affordability, the 30% Shelter Cost-to-Income Ratio was first adopted by the federal government in the mid-1980s. At this time, the Conservative Mulroney Government ordered a review of all major government spending programs. After reviewing the CMCH's program operations and expenditures, the Task Force recommended that the affordability standard used by the CMHC be increased from 25% to 30% "in order to reduce subsidies or improve targeting" (Canada Task Force on Program Review, 1985, p. 36). It is estimated that this change reduced social housing subsidies by approximately $76 million, and cut the number of eligible households by half (Hulchanski, 1995; Van Dyk, 1993). The task force did not offer any scientific research or evidence to support this shift; instead this decision was based on subjective "values and norms about the role of government and about appropriate levels of subsidies" (Hulchanski, 1995, p. 481). Arguably, the increase to the 30% STIR was a strategic decision, but an arbitrary affordability measure.

However, the use of shelter-cost-to-income ratios did not originate with the Canadian government. The conceptualization of STIRs can be traced to the work 19th century German statistician Ernst Engel. Engel was attempting to identify the scientific laws underlying household expenditure on food and housing. In 1857, he undertook an analysis of the expenditure patterns of working class families in Belgium. From this analysis, he reasoned that spending on food varies depending on a household's size and composition, as well as their ability to farm, forage and hunt. Holding all else constant, Engel concluded that "the poorer a family, the greater proportion of total expenditure that must be devoted to the provision of food" (Stigler, 1954, as cited in

Hulchanski, 1995). In the language of economics, Engel was proposing that food is a "normal" good, with an income elasticity of demand less than one.

However, Engel came to a very different conclusion with respect to housing. He proposed that shelter expenditures do not vary with household size or composition, but instead follows an economic law such that the proportion of income that a household spends on shelter and fuel is always the same, regardless of their income level (i.e. unitary income elasticity of demand). From this research emerged the first housing expenditure rule of thumb: one week's wage for one months' rent. This adage, which is essentially a 25% STIR, became a popular way to describe the shelter expenditure patterns of American tenants in the 1880s, and is the conceptual foundation of the 30% STIR.

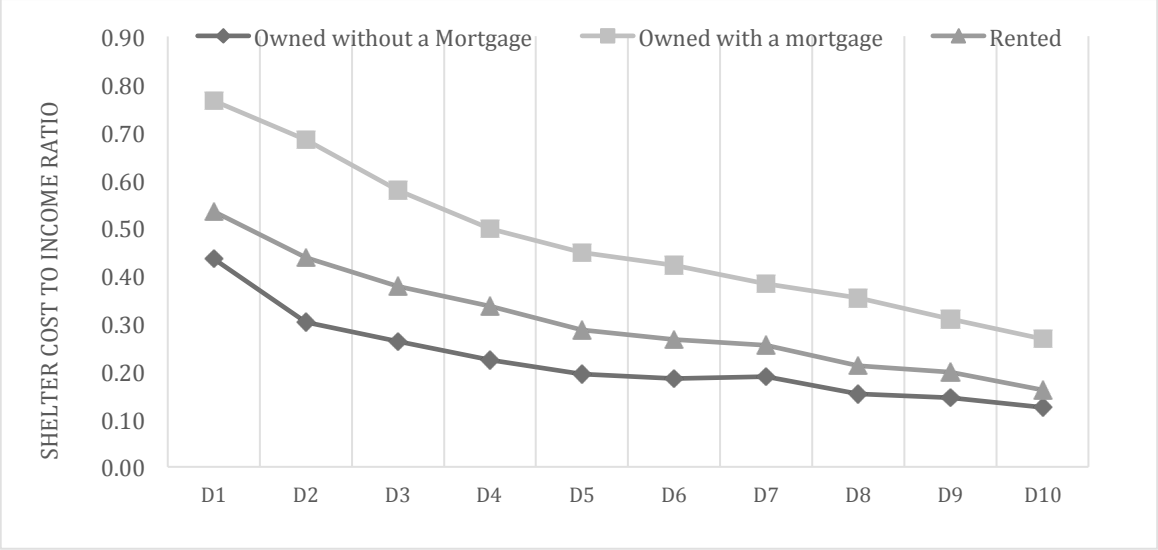
Despite the popularity of Engel's hypothesis, his idea is highly contested. As early as 1868, German statistician Herman Schwabe published a competing theory based on his own analysis of wage and rent data. His theory proposed that as household income increases the proportion of total income spent on housing decreases (i.e. that housing, like food, is a normal good, with an income elasticity of demand less than one). Figure 3.1 below, which shows the per capita rents and shelter expenditures of BC renter households by income decile, demonstrates the validity of Schwabe's hypothesis. When expressed as a percentage of household income, it is clear that housing expenditures are inversely correlated with income.

Hulchanski (1995) identifies five additional problems with the 30% STIR as a description of shelter expenditures. First, the 30% STIR does not account for differences in housing tenure. This is problematic because one would not logically expect an owner household without a mortgage to devote the same proportion of their income to shelter as a renter household (Figure 3.2, which shows the shelter expenditures ratio of renters, owners with mortgages, and owner without mortgages, demonstrates this).

Figure 3.1 Per Capita Shelter Expenditures of BC Renter Households by Income Decile (Gross Household Income)

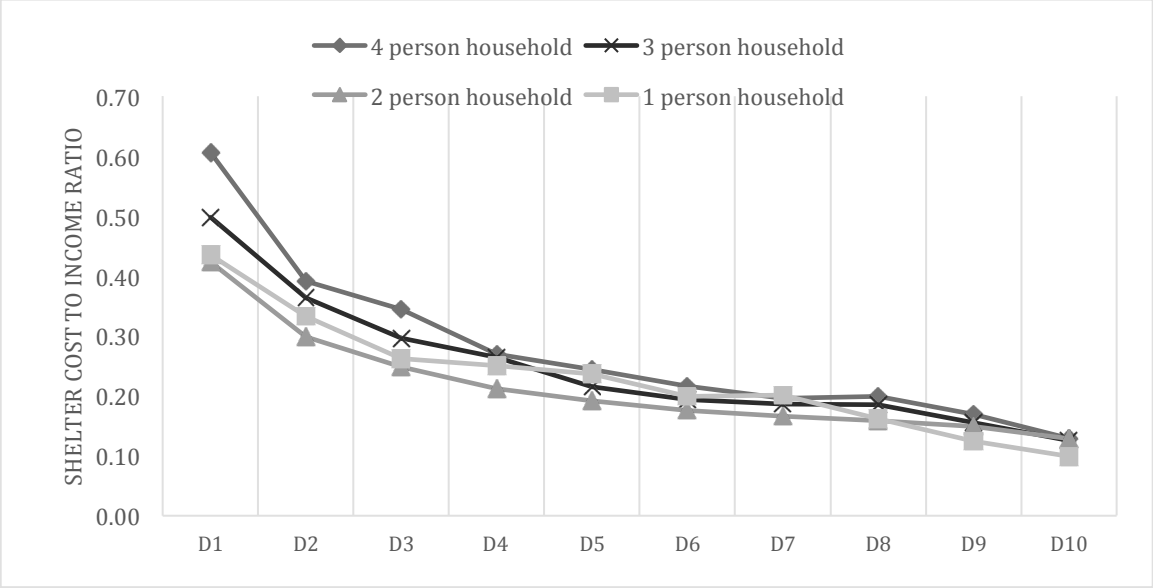
Source: Survey of Household Spending, 2009.
Note: Rent and shelter expenditures are expressed as a STIR using gross household income. The income deciles are for per capita incomes, and have been calculated by equivalizing disposable household incomes by the square root method (see Appendix B for further detail and income deciles).

Figure 3.2 Per Capita Shelter Cost to Income Ratios for Canadian Households by Tenure Type



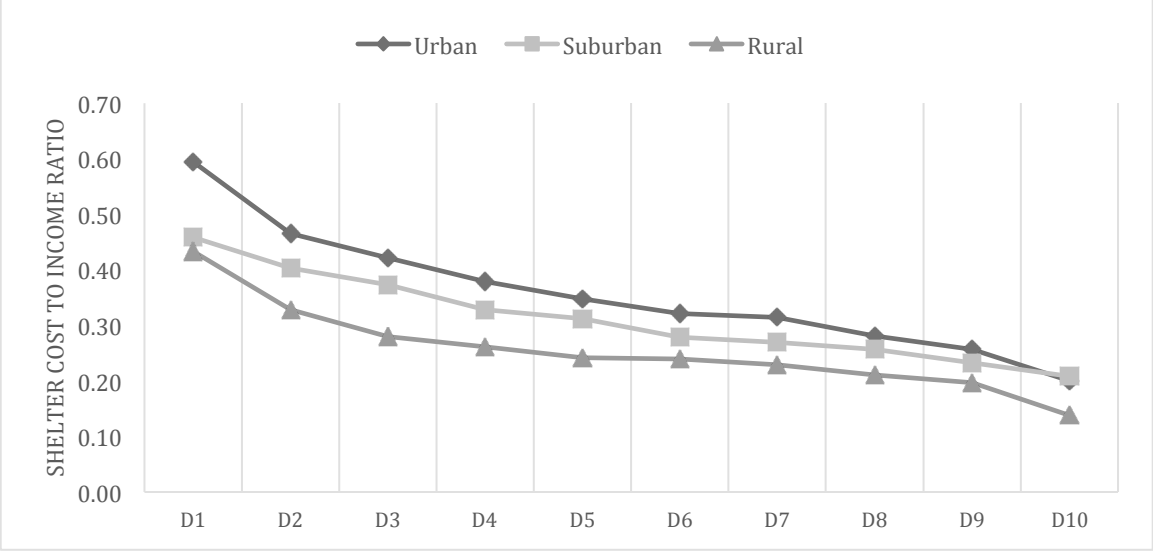
Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income. See Appendix B for income deciles.

Figure 3.3 Shelter Cost to Income Ratios for Canadian Households by Size (Gross Household Income)



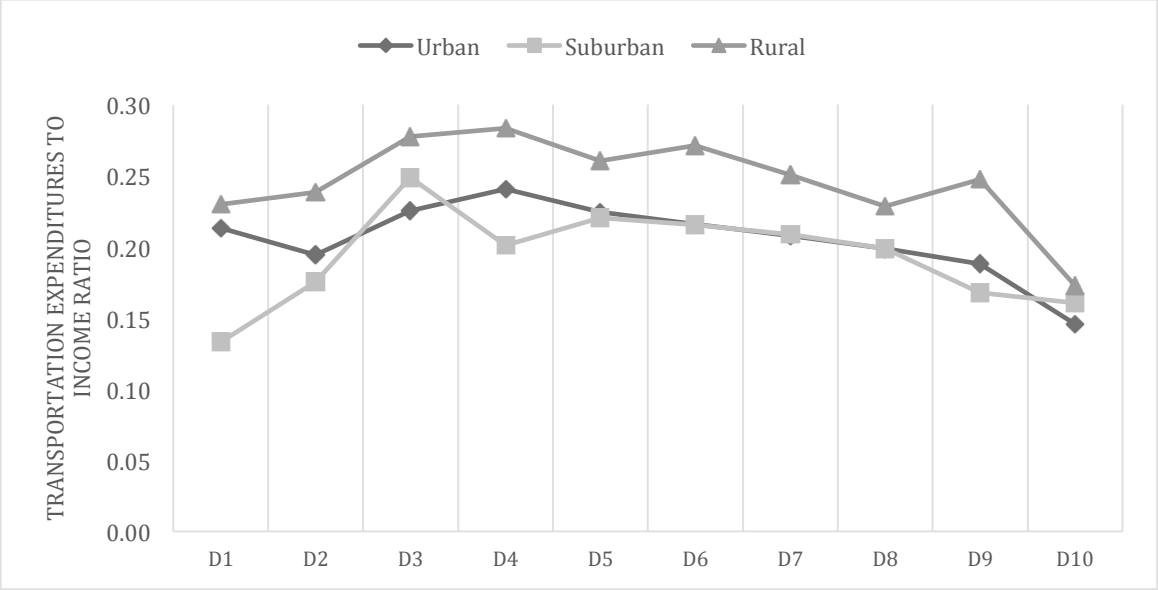
Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have not been equivalized. Gross Incomes are used for the income deciles (see Appendix B).

Figure 3.4 Per Capita Shelter Cost to Income Ratios for Canadian Households by Geography



Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income.

Figure 3.5 Per Capita Transportation Cost to Income Ratios for Canadian Households by Geography



Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income.

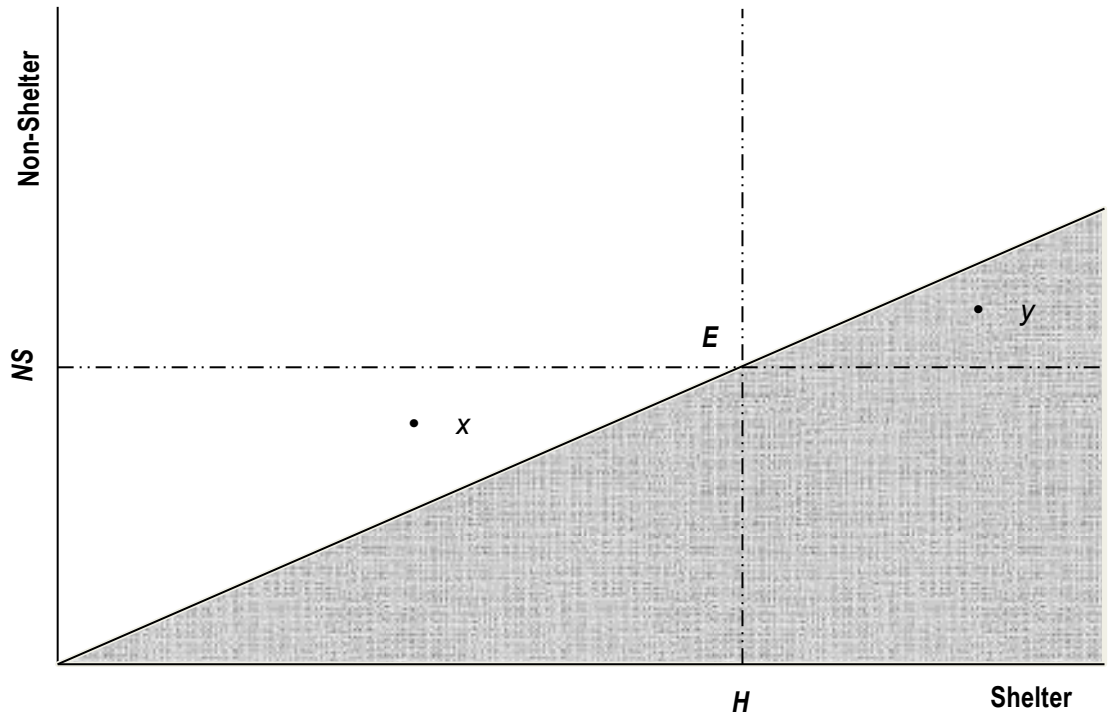
Second, the STIR does not account for differences in household size or composition (Hulchanski, 1995). While there are considerable economies of scale in housing, generally as size of the unit increases the cost increases as well. Holding income constant, we would expect larger households to devote a larger proportion of their income to shelter. Figure 3.3, which shows the STIRs of Canadian households by size, demonstrates that at lower income levels, households of three or four persons devote a larger proportion of household income to shelter households of one or two persons.

Third, STIR fails to account for regional variations in the costs of shelter, such as differences between urban, rural, and suburban areas (Hulchanski, 1995). Typically, shelter is more expensive in urban areas, and thus urban households spend a greater proportion of their income on shelter than rural households do. Figure 3.4, which shows the STIRs of Canadian households by geographic region, demonstrates this problem. However, rural households also tend to spend a greater proportion of their income on transportation, due to a lack of public transportation (Figure 3.5). This means that regional variations in shelter expenditure patterns are both important and complex.

Fourth, STIRs are unable to account for other housing issues, such as physical inadequacy and crowding (Gabriel, Jacobs, Arthurson, & Burke, 2005; Hulchanski, 1995). This is important because, as Burke notes, households often keep "housing costs within reasonable limits by living in physically inadequate [or crowded] housing as an alternative to paying higher rents for adequate housing" (Burke et al., 1981, p. 8). Extending this concept, Stone argues, "if the cost of obtaining satisfactory dwellings and residential environments within the same housing market area exceeds what such households can afford, then they should reasonably be considered to have an affordability problem even though it is not revealed by applying an economic affordability standard" (Stone, 2006, p. 154). Thus, the 30% STIR misses those households that have *implicit affordability problems* – i.e. those households that would have higher shelter burdens if they were not living in shelter that is physically dilapidated or overly crowded.

Finally, the 30% STIR is simply a descriptive statistic that has been dressed up as an affordability definition (Hulchanski, 1995, p. 482). Using a descriptive statistic as an affordability definition is problematic because it confuses what people *do* pay for shelter with what they can *afford* to pay. As a result the 30% STIR fails to adequately account for a household's need to purchase both shelter and non-shelter goods. Indeed under the 30% STIR, "it is possible for individuals to be consuming very little of either housing or other goods and for their housing costs still to be considered affordable" (Hancock, 1993, p. 133). Figure 3.6 below demonstrates this contradiction. The figure shows a minimally acceptable consumption bundle, *E,* composed of both shelter and non-shelter goods (*H* and *NS* respectively). Household *x*, which consumes less than this minimally acceptable basket *E*, is defined by the 30% STIR to be in an affordable housing situation. In contrast, household *y*, which consumes more than the minimally acceptable basket *E*, is in an unaffordable situation by this definition.

Figure 3.6 Shelter and Non-Shelter Consumption under the 30% STIR



Source: Adapted from Hancock (1993)

This failure to consider a household's need to consume both shelter and non-shelter goods is the primary reason why the 30% STIR understates the problem of affordability for families with many dependants (such as children or the elderly) versus single person households (Kutty, 2005, pp. 6–7). One potential solution for this problem is to use a different STIR for different household types. For example, Steele (1985) suggests that if the 30% STIR is appropriate for a two-person, then a STIR in excess of 40% may be appropriate for a single-person household, while a 25% ratio should be used for three people or more (as cited in Steele, 1995, p. 16). Thus, by adjusting the STIR by household size, the issue of the STIR being applied to households of different sizes and compositions can be partially remedied.

Despite their flaws, STIRs are the most commonly used definition of affordability in housing policy. From the perspective of the CMHC and the provincial housing authorities, STIRs are a useful tool because they rely on accessible data and make limited assumptions about a household's shelter and non-shelter consumption patterns.

(Gabriel et al., 2005; Robinson, Scobie, & Hallinan, 2006). Furthermore, they are intuitive and easy to calculate, making them especially easy to explain to non-experts. This is attractive as it allows target household to self-select into affordable housing program

3.2. The Residual Income Method

Despite its ubiquity, the STIR is not the only definition of affordability. Mathematically, the concept of affordability can be measured in at least two ways: (1) as a ratio of housing expenditure-to-income, or (2) as the difference between income and housing expenditures (Gabriel et al., 2005; Robinson et al., 2006; Stone, 2006). The latter concept, which is called the Residual Income method, was developed as an alternative measure of housing affordability in an effort to address some of the STIR's inherent limitations. A "Residual Income" (RI) is simply a household's income less their housing expenditure. The household's Residual Income is considered adequate if they are able to purchase a minimally acceptable basket of non-shelter goods after paying for housing; conversely, if the household is unable to purchase this basket of goods after paying for shelter, their situation is considered unaffordable.

Proponents of the Residual Income method argue that it is able to address several of the STIRs limitations. First, Residual Incomes are more closely tied to a household's level of well-being, because they reflect the need for both shelter and non-shelter goods. Second, they are more accurate across household type, as they can be adjusted for household size, composition, and tenure. Similarly, they can be highly specified by location, with different thresholds on a case-by-case basis. However, while equalizing for regional differences in non-shelter costs is possible, it may be difficult due to issues of data availability (Robinson et al. 2006, Gabriel et al, 2005).

Finally, the Residual Income method does not attempt to put a cost on a minimum standard of shelter. Stone (2006) argues that while it is sound to cost a minimum basket of food, for example, any attempt to do this for shelter is misguided. Shelter is a highly heterogeneous good because it is "bulky, durable, and tied to land, [and thus] shows high price variance and low supply elasticity" (Stone, 2006, p. 161).

Furthermore, there tends to be a low supply of low-cost, but physically adequate units. Thus, if a conservative estimate is chosen, most households will be unable to obtain physically adequate shelter at this price. This makes it very difficult to operationalize a budget standard for shelter.

The most obvious drawback of the Residual Income method is that it is more complex and time consuming than the STIR, and requires more detailed data measurements. It is also dependent on subjective assumptions, since what constitutes an acceptable basket of non-shelter goods is a normative decision, and thus "is socially grounded in space and time" (Stone, 2006, p. 164). Residual Incomes are also a less intuitive concept that STIRs, which may make it difficult to convey eligibility to the target population. Finally, like STIRs, the Residual Income method is unable to account for differences in physical adequacy and crowding explicitly.

Operationalizing the residual income concept requires defining what constitutes a standard basket of non-shelter goods. This is usually achieved through one of two methods. The first method is to use some proportion of a country's poverty line to estimate the cost of non-shelter basket of goods. For example, Kutty (2005) uses two-thirds of the USA's federal poverty threshold. A similar strategy in Canada would be to use some fraction (say 80%) of the LICO or LIM. However, this application is problematic because it duplicates some of the issues with the 30% STIR - namely that shelter expenditures are taken to be an arbitrary percentage of income.

The other method is a budgetary standard that provides a conservative estimate of the cost of a non-shelter basket of goods that varies with household size and location (as in Stone, 2006). In Canada, this budgetary standard could be based on the Market Basket Measure (MBM). The MBM provides a conservative estimate of the cost of essential goods that varies regionally and by household size. The basket of goods includes a nutritious diet, clothing and footwear, shelter, transportation, and other necessary goods and services (such as personal care items or household supplies). Thus, the Residual Income basket can be defined as the total threshold for each household size and region, less the respective shelter amount. Table 3.2 demonstrates this application in British Columbia.

Table 3.2 Non-Shelter Baskets by Household Size and Location for British Columbia

Population Centre Size	1 person	2 people	3 people	4 people
<10,000	$13,118	$18,551	$22,720	$26,235
10,000 - 29,999	$13,118	$18,551	$22,720	$26,235
30,000 - 99,999	$11,822	$16,719	$20,476	$23,644
100,000 - 499,999	$12,278	$17,363	$21,265	$24,555
Vancouver	$12,371	$17,495	$21,426	$24,741

Source: Market Basket Measure (2009)
Note: Non-Shelter amounts are calculated using the MBM's total threshold less the shelter amount.

3.3. The Housing Income Limit

The final definition of affordability considered in this study is called the Housing Income Limit (HIL). HILs, which are actively used within affordable housing programs in Canada, represent the gross household income required to rent appropriately sized unit in a given region for 30% or less of gross household income[10] (see Table 3.3). Thus if a household has income below this cut off, they are considered to have an affordability problem; conversely, if their income is above this cut-off, they are not considered to have an affordability problem.

Housing Income Limits represent a hybrid approach between Residual Incomes and STIRs. On the one hand, like Residual Incomes, HILs depend upon the household's size, composition, and location. However, HILs use the 30% STIR and average market rents to calculate the income cut off, rather than a poverty line or a cost standard. In this way, HILs are problematic because they duplicate the problems of the 30% STIR. Furthermore, they also attempt to put a price on a minimum standard of housing, which is problematic because of the heterogeneity of housing as a good (Stone, 2006).

[10] Where the cost of the unit is usually taken to be the average or median rent in a given community.

Table 3.3 Housing Income Limits for major centres in British Columbia

Region	Bachelor	1 bedroom	2 bedroom	3 bedroom	4 bedroom
Vernon	$23,000	$27,500	$35,000	$41,000	$45,500
Prince George	$23,500	$28,500	$34,000	$38,500	$42,500
Abbotsford	$25,000	$29,000	$36,000	$47,000	$51,000
Kelowna	$26,000	$32,500	$40,500	$50,500	$56,000
Kamloops	$28,500	$31,500	$38,500	$47,000	$52,000
Victoria	$29,500	$34,500	$43,000	$60,000	$67,000
Vancouver	$36,500	$40,000	$49,500	$56,000	$62,000

Source: BC Housing, 2014a
Note: The number of bedrooms that a household is eligible for depends on their household size and composition, subject to National Occupancy Standards (see Table A1 in Appendix A).

HILs are administratively attractive because they are easy to design, administer, and communicate. They are easier to adjust for household size and location than STIRs, and are more likely to capture households with physical adequacy and crowding issues because they set no rent minimum. However, HILs assume that the private market is well functioning, with moderate vacancy rates for low-cost units.

3.4. Which Affordability Definition is Correct?

Conceptually, housing affordability is concerned with the idea that "[h]ouseholds should be able to occupy housing… at a net rent which leaves them enough income to live on without falling below some poverty standard" (Bramley, 1990, p. 16). However, in practice the quality and quantity of that housing, as well as the poverty standard, must always be based on subjective standards. Thus, there is likely no universal definition of housing affordability. However, based on the arguments presented in the literature it is clear that the Residual Income method is the most conceptually sound definition of affordability. For the purposes of public policy, the Residual Income method should likely replace the 30% STIR as a definition of affordability (Stone, Burke, & Ralston, 2011; Stone, 2006).

Table 3.4 Advantages and Disadvantages of Affordability Definitions

Affordability Definition	Advantage	Disadvantage
STIR	• Depends on few variables that are readily available over time • Easy to explain to non-experts • Limited subjective assumptions about individual's consumption	• No clear rationale behind affordability benchmark • A single measure is applied across locations, tenures, types, sizes and compositions • Does not consider non-housing cost • Does not consider issues of housing quality and suitability
Residual	• Makes explicit the relationship between housing and non-housing expenditure • More accurate across household type than ratio measure • Useful for examining housing affordability for low-income households	• Dependent on subjective assumptions about household expenditure • More onerous data requirements than ratio measure (i.e. require data on non-housing costs) • Complex and time-consuming • Does not consider issues of housing quality and suitability
HIL	• Depends on few variables that are readily available over time • Easy to explain to non-experts • More accurate across household type than ratio measure • Useful for examining housing affordability for low-income households	• No clear rationale behind affordability benchmark • More onerous data requirements than ratio measure (i.e. require data on non-housing costs) • Complex and time-consuming • Does not consider issues of housing quality and suitability

Source: Adapted from Gabriel et al., 2005

The Residual Income method may be, by academic consensus, the most methodologically sound definition of affordability for low-income households. However, affordable housing programs and policies are "inevitably shaped by factors other than the conceptual clarity of the affordability standard, such as potentially perverse incentives, fiscal constraints, and political interests, among others" (Stone, 2006, p. 153). Thus, the most *useful* affordability standard will invariably depend upon the design, program objectives, and budgetary constraints of the housing program within which it operates. This is why my analysis considers affordability definitions in the context of a specific housing program. Key components of housing allowances, including their objectives, design, and function in Canada are presented here.

Chapter 4. Housing Allowances

4.1. What are Housing Allowances?

Housing allowances are cash benefits paid directly to households in the private housing market. Three characteristics of housing allowances distinguish them from other government housing policies. First, housing allowances are *demand-side subsidies*; instead of subsidizing a unit designated for low-income households, housing allowances subsidize the household by providing a direct cash payment to the consumer. This cash payment allows the household to more easily afford physically adequate and uncrowded accommodation in the private rental market. Second, households can take the subsidy with them when they move; thus, unlike social housing, housing allowances are *portable* (Kemp, 2000; Hulchanski 1984). Finally, housing allowances may avoid the problem of stigma if the benefit if paid directly to the household.

4.2. Housing Allowances in Canada

Over the past four decades, housing allowances have emerged internationally as a major policy tool to address issues of housing affordability in the private rental market. In some industrialized countries, such as Sweden and the Netherlands, housing allowances have completely replaced social housing (Kemp, 2000, pp. 55–56).

In contrast, housing allowances remain a relatively small proportion of the Canadian housing sector. The first housing allowance was introduced in Canada in 1976 (BC Department of Housing, 1976). This program, called Shelter Aid for Elderly Renters, serves low-income seniors with high housing burdens in the private rental market. Following the success of SAFER, Manitoba, Quebec, Nova Scotia, and New Brunswick

all introduced similar programs aimed at seniors[11]. The first housing allowance program for low-income families was introduced by Manitoba in 1981. Five provinces in Canada currently have at one or more housing allowance programs to assist either seniors, families, or individuals with disabilities (see Table 4.1**Error! Reference source not found.**). Canada has no federal housing allowance program, largely because there has been concern that such a program would prove to be "ruinously expensive" (Steele, 2007, p. 78).

Table 4.1 Housing Allowance Programs in Canada (2015)

Province	Program Name	Year	Target	Tenure	Eligibility Criterion	Maximum Monthly Benefit
British Columbia	Shelter Aid for Elderly Renters	1976	Seniors	Renters	30% STIR	$846
	Rental Assistance Program	2006	Families	Renters	30% STIR	$729
Alberta	Direct to Tenant Rent Supplement	2008	Seniors, Families	Renters	HIL	$500
Saskatchewan	Family Rental Housing Supplement	2009	Families	Renters	35% STIR	$364
	Disability Rental Housing Supplement	2009	Individuals with disabilities	Renters	35% STIR	$336
Manitoba	Rent Assist	1980/81	Seniors, Families and individuals with disabilities	Renters	25% STIR	$270
Quebec	Shelter Allowance Program	1980	Seniors and Families	Homeowners and Renters	$50,000 Income Maximum	$80

Source: Adapted from the Canadian Council on Social Development (1982), as cited in (Hulchanski, 1983, p. 29); BC Housing, 2008; Government of Saskatchewan, 2013; Housing and Communtiy Development Manitoba, 2015; Mccarthy, 2005; Revenu Quebec, 2015

[11] However, the programs in Nova Scotia and New Brunswick are now defunded.

4.3. Objectives and Impacts

Housing allowances are a hybrid policy instrument, in that they serve both housing policy and income security objectives (Kemp, 2007, p. 5). From a housing policy perspective, housing allowances enable low-income households to consume higher quality shelter than they would otherwise be able to afford. From an income security perspective, housing allowances enable low-income households to reduce the share of income that they spend on shelter, and, as a result, increase the share of income that they spend on other essentials. This reallocation of income away from housing towards other essentials also increases long-term housing stability, because it decreases the need for households to choose between shelter and non-shelter goods. Therefore, regardless of how the additional income is spent, housing allowances can have a significant impact on recipient households' standard of living.

While housing allowances may severe all three objectives, one function invariably dominates (Kemp, 2000). Steele argues that despite the fact that housing allowances are nominally in the domain of housing policy, they are "not intended to induce households to move to better housing or different neighbourhoods, but simply to reduce their rent burden" (2007, p. 66). This is in part because relatively few Canadian households live in shelter that is overcrowded or of inferior quality (Canadian Mortgage and Housing Corporation, 2011a). Thus, the design of housing allowances primarily reflects the income security and housing stability functions. Therefore, it may be more appropriate to assess the adequacy of housing allowances in terms of how much additional food it allows the household to purchase, rather than its ability to increase housing consumption. When accessed from this paradigm, the benefits from Canadian housing allowances are significant (Steele, 2007).

4.3.1. Rent Inflation and Landlord Behaviour

One point of concern when assessing the effectiveness of housing allowances is the possibility of *rent inflation*. Rent inflation occurs when landlords capture part or all of the benefit through rent increases, thus reducing the effective incidence of the benefit. International evidence suggests that the extent of rent inflation depends on the size of

the program. Analysis of several large European housing allowance programs suggests that a substantial portion of the benefit is shifted to rental prices (Fack, 2006; Gibbons & Manning, 2006; Laferrère & Le Blanc, 2004; Viren, 2013). In contrast, analysis of smaller programs in the USA suggests that rent inflation is modest (Susin, 2002). Empirical evidence from Manitoba's SAFER program suggests inflationary effects are negligible (Steele, 1985a , as cited in Finkel, Climaco, Khadduri, & Steele, 2006). "Indeed, the stagnant level of mean benefits in nominal dollars is convincing evidence that [Canadian] housing allowances have had little effect on housing consumption or on the rent setting of landlords (Steele, 2007, p. 77). Finkel et al (2006) suggest that Canada's lack of rent inflation may be due to several factors. First, the rent and income range over which Canadian housing allowances award high benefits is relatively narrow. Second, because benefits are awarded directly to households, landlords may not be aware that their tenants are receiving subsidies. Finally, many provinces have second-generation rent control, thus limiting landlord's ability to increase tenants' rent levels unilaterally. However, further research on the inflationary effects of housing allowances in the provincial context is needed.

4.3.2. Marginal Effective Tax Rates (METRs) and Work Incentives

An unintended consequence of high housing allowances subsidies may be reduced income from employment. This concern is based on the neo-classical hypothesis that the income-related cash benefits from housing allowances may incentivize low-income households to work fewer hours and enjoy greater leisure time. This shift away from employment is perceived by governments to be undesirable not only because it may increase program expenditures in the long run, but also because it may delay the transition of low-income households out of poverty, thus imposing a net cost on society.

This disincentive to work is hypothesized to increase the progressivity of the benefit increases; in this way high benefit clawbacks impose trade-offs between the progressive benefits and disincentives to work. Furthermore, similar disincentive effects from other highly targeted programs may compound this trade-off. For example, low- and moderate-income families face very high Marginal Effective Tax Rates (METRs) due

to the combination of high clawbacks on housing allowances, personal income taxes, and targeted programs such as the Canadian Child Tax Benefit (CCTB) and the National Child Benefit Supplement (NCBS). Poschmann (2008) reports that for Canadian families with net households incomes between $30,000 - $40,000, METRs are above 60% in all provinces, and as high as 80% in British Columbia. This suggests that for every $100 increase in net income, the household gains only $20 in increased consumption. This may pose a very large work disincentive.

The cumulative disincentive effects from high METRs and housing allowance clawbacks will depend on how transparent these mechanisms are to low- and moderate-income households. Meta-analysis of American literature on the US Voucher Program concludes that housing allowances are "not persuasively associated with any effect on employment, positive or negative" (Shroder, 2002, p. 383). However, the US Voucher Program is very different in design to housing allowance in Canada, and it may be that these results are not generalizable to Canada (Steele, 2001). Further research on the effects of Canadian housing allowances on employment is needed.

4.3.3. Housing Consumption and Moral Hazard

Housing allowances may also perversely affect tenants' shelter consumption behaviour. Because housing allowances are tied to the beneficiary's rental payments (up to a maximum), they reduce the price of shelter relative to other goods, and thus provide an incentive for recipient households to increase their housing consumption. While increase housing consumption is an objective of housing allowances up to a point, program administrators are concerned that households might have an incentive to increase their housing consumption unduly, thereby inflating program expenditures.

Program administers use a number of strategies to restrict this moral hazard problem. First, the fact that most Canadian housing allowances require households to pay at least part of their rent provides an incentive for households to 'shop around' for shelter - the larger the household's contribution, the higher this shopping incentive.

Second, most housing allowances restrict the size of the benefit that a household can receive by imposing maximum monthly rent and benefit levels. This provides an

incentive for households to keep their housing consumption relatively low, because any rent increase beyond this threshold will come entirely out of their own pocket. The fact that most housing allowance programs do not index the rent and benefit maximum to inflation compounds this. Thus, even though a household may currently be consuming shelter below the allowable maximum, it may be that next year their rent is increased, pushing them beyond the benefit maximum. This provides an incentive for households to search for accommodation that will remain below the allowable maximums for several years (Steele, 1995, p. 24). Steele also reports that in Canada, a substantial proportion of beneficiaries are already paying rent above the threshold when they join the program. Thus for these households, any increase in their rent would come 100% out of their own pocket, so that the program imposes no distortion on their housing choices.

4.4. Designing Housing Allowances

When designing housing allowances, it is necessary to consider both how eligibility for the program is determined, as well as the allocation of benefits.

4.4.1. Eligibility

When determining eligibility for benefits, almost all housing allowance programs use a combination of categorical and income targeting, in combination with an affordability standard. In Canada, categorical targeting restricts eligibility to three specific types of households: low-income seniors, families with dependant children, and individuals with developmental disabilities or delays. Similarly, eligibility is usually restricted to renter households. One exception to this rule is the Shelter Allowance Program in Quebec, which is open to low-income homeowners as well (see Table 4.1).

Eligibility is further restricted to low-income households through income limits, and usually, though not always, cash asset limits.

Finally, most housing allowance programs use an affordability definition, like the ones defined in Chapter 3, to restrict eligibility. One common affordability standard is the 30% STIR in combination with a maximum income limit. For example, to be eligible for

BC Housing's Shelter Aid for Elderly Renters, senior couples must have gross monthly income below the relevant income limit, and be paying more than 30% of their gross monthly household income for rent (see Table 4.2).

Table 4.2 Eligibility Criteria for BC Housing's Shelter Aid for Elderly Renters

Household Size	Metro Vancouver	Other Areas of BC
Singles	$2250	$2223
Couples	$2750	$2423
Shared	$1776	$1776

Source: BC Housing, 2014

Table 4.3 Housing Income Limits for Alberta's Direct to Tenant Rent Supplement in Edmonton

Eligible Bedroom Size*	Maximum Income per Year
Bachelor/Studio	$33,000
One Bedroom	$38,000
Two Bedroom	$48,000
Three Bedroom	$59,000
Four Bedroom	$64,000
Five + Bedroom	$67,000

Source: Capital Region Housing Corporation, 2011
* Where the number of rooms a household is qualified for is determined by the National Occupancy Standards.

Another commonly used affordability standard in Canada is the Housing Income Limit. For example, to be eligible for Alberta's Direct to Tenant Rent Supplement, a household living in the Edmonton CMA must have gross household income less than the limit for their unit size (see Table 4.3) .The household must also $7,000 in cash assets or less.

4.4.2. Benefit Allocation Method

Three common methods to calculate benefit entitlements in housing allowances are: (A) the gap method, (B) the transfer method, and (C) the percent of rent method (Hulchanski, 1984).

Gap Method

By far, the most common method in Canada is the *partial income gap method* (abbreviated hereafter to gap method). The gap method subsidizes a specified proportion of the difference between a household's eligible shelter cost and their required contribution rate, where the contribution rate is usually 30% of household income. The formula for this method is:

$$BE = \lambda \times ([min\ (R^*, R)] - \alpha Y)$$
$$where\ \lambda = f(Y)$$

Here, alpha (α) is the affordability standard (usually the 30% STIR), R is actual shelter expenditure, R^* is the maximum subsidized shelter cost, Y is actual income, and λ is the subsidization rate. If the subsidization rate is 100%, then this is the full-income-gap method[12]; anything less than 100% is the partial-income-gap method. Historically, most Canadian housing allowances have used subsidization rates between 50% and 90% (see Table 4.4), though most today use a sliding scale inversely related to income.

The advantage of the gap method is that it allocates benefits in a progressive fashion: all else held equal, the lower the beneficiary's income, the higher their benefit. Similarly, the higher their rent (up to R*), the higher their benefit. However, the gap method also reproduces some of the flaws created by the 30% STIR. This is because it defines a household's affordability gap as being the difference between their current and 30% of their gross household income. This is problematic because it is unable to account for physical adequacy or crowding problems, and because it allocates benefits to households with the same rents and incomes, but

[12] Social housing programs that are "Rent-Geared-to-Income" allocate benefits using this formula.

different needs (i.e. between large and small household, and households in urban and rural areas).

Table 4.4 Benefit Allocation Methods of Historical Canadian Shelter Allowance Programs

Province	Program	Eligibility	Formula
British Columbia	Shelter Aid for Elderly Renters (SAFER)	Low-income elderly renters 65 years of age and older	75% × (R – 0.3Y)
Manitoba	Shelter Allowance for Elderly Renters (SAFER)	Low-income elderly renters 55 years of age and older	(60% - 90%) × (R – 0.25Y)
	Shelter Allowance for Family Renters (SAFFR)	Low-Income Families with children	(60% - 90%) × (R – 0.25Y)
Quebec	Shelter-Aid for Seniors	Low-income elderly renters 65 years of age and older	75% × (R – 0.3Y)
New Brunswick	Rental Aid to the Elderly	Low-income elderly renters 65 years of age and older	(50% - 75%) × (R – 0.25Y)

Source: Adapted from the Canadian Council on Social Development (1982), as reproduced in Hulchanski (1987). Percentage figures for formulae show the range based on income.

Transfer Method

The transfer approach allocates benefits according to income criteria. Under this approach, subsidies are paid according to the extent to which the recipient's income is less than a given amount. This amount may be any value, though it is often based on an estimate of the market rent required to obtain "adequate" housing and a basket of non-shelter goods. The formula for this method is:

$$BE = R^* + NS - Y$$

where R^* is the cost of adequate housing, and NS is the cost of a modest basket of non-shelter goods. With a little rearranging, this concept is analogous to the Residual Income definition of housing affordability, which is:

$$BE = NS - [Y - (min\ (R, R^*))]$$

Where R is actual shelter expenditure, R^* is the maximum subsidized shelter cost, and Y is actual income. The benefit of this method is that, like the partial gap method, benefits are progressive. The drawback is that this method covers the full affordability gap, which can create negative work incentives. Introducing a subsidization rate that varies inversely with income addresses this:

$$BE = \lambda \times (NS - [Y - (min\ (R, R^*))])$$
$$where\ \lambda = f(Y)$$

Percent of Rent Method

The percent-of-rent approach has been used less extensively in Canada, but has been the cornerstone of the US Housing Voucher system. This method subsidizes some portion of the actual shelter expenditures (R) or maximum eligible shelter costs (R^*). The formula for this method is:

$$BE = \lambda \times min\ (R, R^*)$$

If the objective of the program is to increase housing consumption, this method is desirable. The drawback of this method is that benefits are not progressive, because moderate-income households will tend to have higher rents, and therefore, higher benefits. Introducing a subsidization rate that varies inversely with income could partially address this.

4.5. BC Housing's Rental Assistance Program

As previously discussed, this study uses an existing housing allowance, the Rental Assistance Program (RAP), to illustrate the application of concepts and measures. BC Housing established RAP in 2006 in order to increase housing stability and affordability for low-income families; RAP also takes pressure off long social housing waitlists by assisting families in the private rental market. RAP assists approximately 10,000 families annually, approximately 40% of whom are new recipients (BC Housing,

2006, 2007, 2008a, 2008b, 2009, 2011, 2012, 2013). SAFER and RAP have combined annual program expenditures in excess of $75 million (see Figure 4.1 below), with average benefit sizes of $160 and $379 per month respectively (BC Housing & Canadian Mortgage and Housing Corporation, 2014).

4.5.1. Program Design

RAP is designed to assist low-income working families in the private rental market and limits household eligibility to low-income renter families with dependant children through a combination of categorical and income targeting (see Table 4.5). The affordability definition used by RAP is a combination of a maximum income criterion of $35,000 in gross household income, and the 30% STIR[13]. Notably, RAP's affordability definition does not specify that shelter must meet a minimum physical standard, thus defining affordability without saying anything about the quality or quantity of housing consumed. While on one hand this allows households greater freedom over the type of unit they rent, it also means that at the margin households with implicit affordability problems may not be eligible for benefits.

RAP allocates subsidies to households using the partial income gap method, as given by:

$$BE = \lambda \times ([min\ (R^*, R)] - 0.3Y)$$
$$where\ \lambda = f(Y)$$

where R is the household's actual rent expenditures, R^* is the monthly rent ceiling (see Table 4.6), Y is household income. The benefits are also subject to a monthly maximum, so that they may not exceed the amounts shown in Table 4.7. The subsidization rate, lambda (λ), varies inversely with income, such that low-income households receive higher benefits. The subsidization rate is also higher for large, urban households than it is for other household types (see Figure 4.2). Similarly, the monthly benefit maximums are also higher for large urban households (see Table 4.7).

[13] Shelter expenditures include monthly rent, as well as $50 per month if heat is not included in the household's rent.

4.5.2. Program Design Implications

The choice of RAP's eligibility criteria and benefit allocation methods have important implications for the program's primary objectives, as well as creating indirect program impacts. These design implications are presented here.

RAP's eligibility criteria clearly create horizontal equity issues. Neither the income cut off nor the 30% STIR used to determine eligibility take into consideration the size or composition of the household. This suggests that RAP under-assesses affordability problems for large households at the margin. Similarly, the eligibility criteria are applied indiscriminately to households regardless of where they live. This is problematic because rents in the city of Vancouver are considerately higher than rents in medium sized cities (Canada Mortage and Housing Corporation, 2013). Finally, the 30% STIR creates *implicit rent minimums*. Implicit rent minimums exclude low-households if they are not spending at least 30% of their gross household income on rent. This is problematic in the context of households with very low levels of income and households with implicit affordability problems – i.e. those households what would have high shelter burdens if they were not living in shelter that is physical inadequate or crowded. Thus, the implicit rent minimums created by the 30% STIR exclude unfairly exclude households with affordability problems but low-shelter burdens.

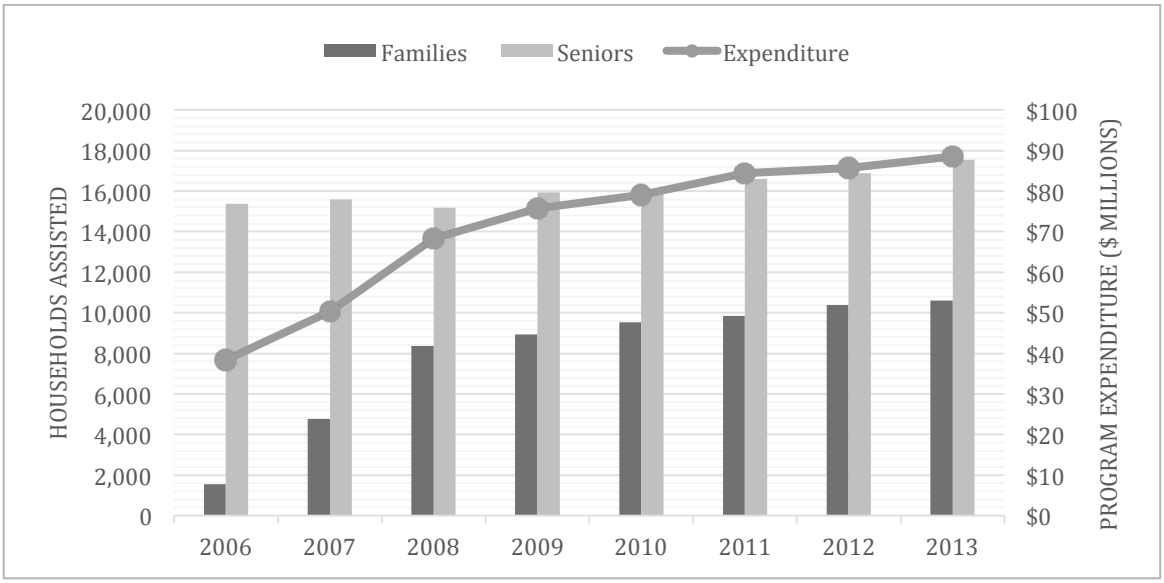
RAP's benefit allocation method also has horizontal equity implications. Theoretically, a horizontally equitable program would give the same benefit to households with similar incomes, all else being equal. The problem then is how to differentiate between households that have the same income, but not the same need – i.e. households that differ in size, composition, and housing burden. Clearly this relates to the choice of benefit allocation method, as "differences in the way that [household need, income and shelter expenditure] are combined into a formula can make a significant difference to the amount of financial assistance that particular types of households receive" (Kemp, 2000, p. 50). As previously explained, RAP uses the gap method to allocate benefits. The gap method is problematic because it defines a household's affordability purely with respect to their actual shelter expenditures and their gross household income. The size of the affordability gap is not influenced by a household's size, composition, or location. Nor does the affordability gap consider a

household's need to purchase non-shelter goods. Furthermore, the gap method requires that the family contribute 30% of their income towards paying for their shelter costs. This is problematic in the context of households with very low levels of income who cannot truly afford to pay anything for shelter. RAP attempts to overcome these problems by using a different subsidization rate for larger households in Metro Vancouver (see Figure 4.2). However, this only partially ameliorates the problem.

RAP's benefit allocation method also has vertical equity implications. Theoretically, vertically equitable programs provide higher benefits to low-income households than moderate- or high-income households (though this may present trade-offs in terms of work incentives). The vertical equity of a program can be evaluated through its Marginal Effective Tax Rate (METR), which measures how much the benefit from the program decrease as income increase. RAP has moderately progressive METRs that increase as household income decreases, thus modestly concentrating benefits on low-income households (see Figure 4.3). However, RAP also has monthly benefit maximums; thus up to this maximum, there is little or no work disincentive, because the increased income from employment has no effect on benefit levels.

Finally, the choice of benefit allocation method also has implications for potentially perverse housing consumption behaviour. As previously discussed, housing allowances provide an incentive for recipient households to increase their housing consumption, perhaps more than is reasonable. RAP uses two strategies to attempt to limit this behaviour. First, all households are expected to contribute at least 30% of their gross household income to rent (though this is usually higher in practice because the partial income gap method does not subsidize the full affordability gap). Furthermore, RAP also utilizes monthly rent and benefit maximums (see Table 4.6 and Table 4.7), which are not indexed to inflation. This means that any increase in rent above the program ceiling levels will come entirely out of the pocket of the households, thus provides an incentive to shop around for cheaper accommodation.

Figure 4.1 Housing Allowances in British Columbia



Source: BC Housing, 2006, 2007, 2008a, 2008b, 2009, 2011, 2012, 2013
Note: Unlike SAFER, which has had consistent eligibility and benefit allocation methods since 2006, RAP's administrative guidelines changed in 2007 and 2008.

Table 4.5 Eligibility Rules for BC Housing's Rental Assistance Program

Eligibility Rules	Description
Affordability	• The household must have annual market income of $35,000 or less as reported on the previous year's income tax return • The household must have a STIR of greater than 30%
Household Type	• The household must have at least one dependant child
Residency	• All members of the household must be residents of BC for at least the last 12 months
Tenure	• The household must be renting in the private rental market • The household must not be living in government subsidized social housing
Income	• The household must have at least some income from work or employment • The household may not be receiving income assistance from the provincial government[14]
Assets	• The household may not own a home that they are not living in • The household may not have total assets in excess of $100,000

Source: BC Housing, 2008d

[14] With the exception of MSP premium assistance.

Table 4.6 Rental Assistance Program: Monthly Rent Ceilings

Household Size	Metro Vancouver	Other Areas of BC
2-3	$975	$900
4+	$1100	$940

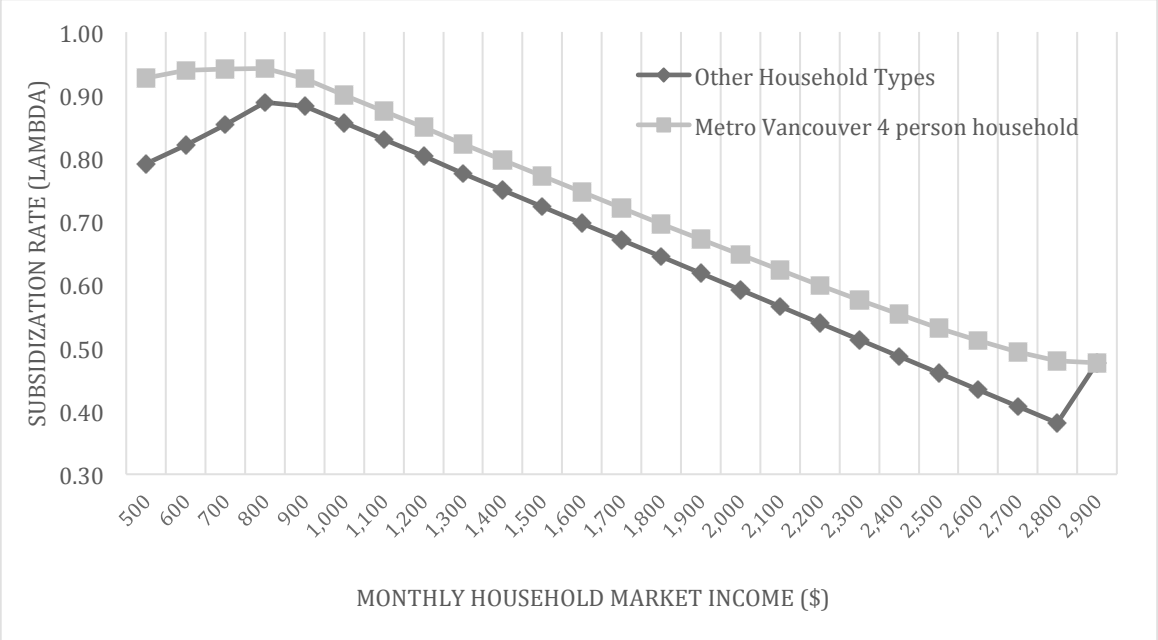
Source: BC Housing RAP Brochure (April, 2008 to April, 2014

Table 4.7 Rental Assistance Program: Maximum Monthly Benefits

Household Size	Metro Vancouver	Other Areas of BC
2-3	$653	$585
4+	$765	$621

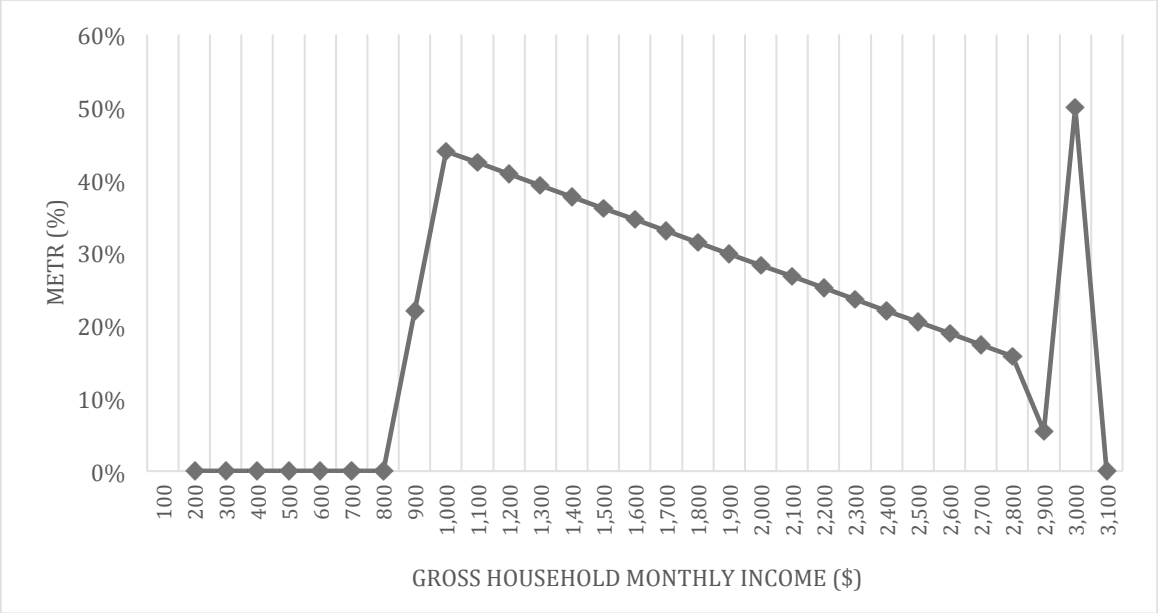
Source: BC Housing RAP Brochure (April, 2008 to April, 2014

Figure 4.2 Subsidization Rate used in BC Housing's Rental Assistance Program



Source: BC Housing Rental Assistance Calculator (April 2008 – April 2014)

Figure 4.3 RAP's METR by Gross Monthly Household Income



Source: (BC Housing, 2008c)
Note: Calculated for a two-person household in Metro Vancouver, with monthly rents of $990.

Chapter 5. Policy Options

5.1. Policy Options for Determining Program Eligibility

Based on the information presented in the preceding chapters, I have selected three alternative policy options for determining program eligibility in the Rental Assistance Program (see Table 5.1). These eligibility options have the potential to improve the equitability of RAP's targeting mechanism, while maintaining the program's core objectives – addressing the affordability and housing stability of low-income families with dependant children. Unless otherwise specified, the eligibility policy options include the other program guidelines set out by BC Housing's Rental Assistance Program (see Table 4.5).

Table 5.1 Policy Options for Determining Eligibility

Eligibility Criterion	Income Definition	Households are eligible if:
Status Quo: 30% STIR	Gross	• Gross household income ≤ $35,000 • STIR ≥30%
Adjusted STIR	Gross Adjusted	• Gross adjusted household income ≤ $25,000 • Adjusted STIR ≥ 43%
Residual Income	Disposable	• Residual Income < Cost of Non-Shelter Basket of Goods
Housing Income Limit	Gross	• Gross Household Income < Housing Income Limit

5.1.1. Eligibility Option One: The Status Quo

The first eligibility option is the status quo: the 30% Shelter-Cost-to-Income Ratio used in conjunction with the $35,000 maximum income criteria. This eligibility option uses gross household income to define incomes and STIRs.

5.1.2. Eligibility Option Two: Adjusted STIRs

The second eligibility option is modeled based on the status quo, but attempts to address the STIR's horizontal equity issues. It does this by adjusting or "equivalizing" households' incomes and STIRs, thus putting larger households on equal footing with smaller ones (see Table 5.2). Here gross household income defines income limits and STIRs.

Table 5.2 Adjusted Income Limits and STIRs

Household Size	Income Limit	STIR
1 person	$25,000	43%
2 people	$35,000	30%
3 people	$43,000	25%
4 people	$50,000	21%
5 people	$55,000	19%

Note: See Appendix A for detailed explanation of equivalization method

5.1.3. Eligibility Option Three: Residual Income Method

The third eligibility option uses neither the 30% STIR, nor the maximum income limit. Instead, this option bases eligibility on a household's "residual income" – that is the household's disposable income after paying for rent. If the household's income is less than the minimum required to purchase a standard basket of non-shelter goods, then the household is eligible for the program. In my analysis, the Market Basket Measure's Total Income Threshold less the shelter amount defines the cost of the non-shelter basket of goods (see Table 5.3). Note that the cost of the basket depends on the household's size and region.

Table 5.3 Non-Shelter Baskets

Region	2 people	3 people	4 people
Urban	$17,495	$21,426	$30,301
Suburban	$16,719	$20,476	$28,958
Rural	$18,551	$22,720	$26,235

Note: see Appendix A for detailed explanation of non-shelter basket estimates

5.1.4. Eligibility Option Four: Housing Income Limit

The fourth eligibility option uses neither the 30% STIR, nor the province-wide maximum income limit. Instead, this option uses local Housing Income Limits (HILs). As described previously, HILs specify the gross household income that a family needs in order to be able to afford the median rent in a given region for an appropriately sized unit (see Table 5.4 and Table 5.5). Thus, the applicant's income is the basis for eligibility, irrespective of their actual rent. While the CMHC derives HILs annually, Appendix A presents the methodology used to construct HILs in my analysis. HILs utilize household gross income, and therefore so does this eligibility option.

Table 5.4 Housing Income Limits

Region	2 Bedroom	3 Bedroom	4+ Bedroom
Urban	$37,400	$45,320	$66,320
Suburban	$34,080	$35,200	$51,280
Rural	$35,640	$33,640	$34,760

Note: see Appendix A for detailed explanation of Housing Income Limit estimates

Table 5.5 National Occupancy Standards

One Bedroom is allocated for:	• Each cohabiting adult couple • Each lone parent • Unattached household member 18 years of age and over • Same-sex pair of children under age 18 • And additional boy or girl in the family, unless there are two opposite sex children under 5 years of age, in which case they are expected to share a bedroom

Source: (Canadian Mortgage and Housing Corporation, 2014)

5.2. Benefit Allocation Policy Options

Based on the information presented in the preceding chapters, I choose one alternative policy option for allocating benefits (see in Table 5.6). This benefit allocation method may potentially improve RAP's progressivity, as well as brining benefits closer to a household's need.

Table 5.6 Benefit Allocation Policy Options

Benefit Criterion	Description	Def. of Income	Formula
Gap Method	Households receive a portion of the difference between their eligible rent and 30% of the income	Gross	BE = (R – Y) where = f(Y)
Transfer Method	Households receive a portion of the difference between their residual income and the cost of a non-shelter basket of goods	Disposable	BE = (NS – Y + R) where = f(Y)

5.2.1. Benefit Option A: Gap Method

The partial gap method subsidizes part of the difference between a household's eligible rent and 30% of their household income. The subsidization rate negatively correlates with income, such that as income increases the size of the benefit entitlement decreases (all else held constant). The formula for this option is:

$$BE = \lambda(R - \beta Y)$$
$$where\ \lambda = f(Y)$$

where R is eligible rent, Y is household (market) income, beta (β) is the 30% STIR, and lambda (λ) is the subsidization rate. As previously discussed, this is the option currently used to determine benefits for both SAFER and RAP.

5.2.2. Benefit Option B: Transfer Method

The partial transfer method subsidizes a portion of the difference between a household's residual income (i.e. the income they have left over once they have paid for shelter) and the minimum cost of a non-shelter basket of goods. Holding rent constant, this policy option concentrates benefits on lower income households because the gap between their resources and the cost of the basket is higher. The formula for this option is:

$$BE = \lambda\ (NS - Y + R)$$
$$where\ \lambda = f(Y)$$

where lambda is the subsidization rate, and *R* is eligible rent, as before. Here *Y* is disposable household income and *NS* is the minimum cost of a non-shelter basket of goods, which varies depending on the household size and location (see Table 5.3).

5.3. Policy Option Sets

Together, the eligibility option and the benefit method create the "policy option set." Using the methodology described in Chapter 2, I have estimated the number of eligible renter households in British Columbia, the number of beneficiary households[15], and the average size of the benefit for each policy set. Table 5.7 summarizes these policy sets.

This table demonstrates a general trade-off between the number of households eligible under the policy set, and the average size of the benefit, though this relationship is not one-to-one. This result arises because the average size of the benefit also depends on the composition of households that are eligible.

[15] Assuming a participation rate of 55% among eligible households.

Table 5.7 Policy Option Sets

Eligibility Policy Option	Eligible Households (Recipient Households)	Benefit Allocation Method	Average Benefit Size
30% STIR	27,200 (15,200)	Gap	$335
		Transfer	$369
Adjusted STIR	33,652 (18,778)	Gap	$260
		Transfer	$305
Residual Income	22,200 (12,400)	Gap	$430
		Transfer	$420
Housing Income Limit	31,000 (17,300)	Gap	$344
		Transfer	$336
Total Expenditure ($ millions)			$55.0

Source: Survey of Household Spending, 2009
*Actual average benefit is $379 per month (BC Housing & Canadian Mortgage and Housing Corporation, 2014)

Chapter 6. Criteria and Measures

Evaluating program design options requires consideration of intended program impacts, indirect impacts, and administrative issues (Finkel et al., 2006, p. 71). Policy sets are evaluated based on four criteria: family welfare, horizontal equity, vertical equity, and administrative acceptability. These criteria and their measures are summarized in Table 6.1 through Table 6.4 below.

The scores of the criteria with multiple measures are averaged so that each criterion is given a score between one and three. This reflects equal weighting of all criteria. Policy makers may allocate different weights, depending on the specific objectives of their program or policy.

6.1. Family Welfare

RAP's intended program impacts are to shorten social housing waitlists, and to increase housing affordability and stability among low-income families. In the context of budgetary restraints, there is a trade-off among these three objectives – as the number of eligible households increases, the size of the benefit decreases on average, but fewer families have to be put on the waitlist for social housing. Thus in order to meet both of these objectives adequately, a balance must be struck. As such, the policy sets are evaluated on their ability to meet these objectives using two measures (see Table 6.1).

The number of households eligible under each policy option is evaluated relative to the status quo, which I estimate to be approximately 27,000 households. If the policy set substantially increases the number of eligible households compared to the status quo, it scores well. Conversely, if the eligibility option substantially reduces the number of eligible households, it scores poorly. If the policy set leaves the number of eligible households unchanged, it scores moderately.

Table 6.1 Family Welfare Criteria and Measures

Description	Measure	Rating
Number of Eligible Households: How many households are eligible under the Eligibility Option?	>35,000 households	(3) High
	25,000 - 35,000 households	(2) Medium
	<25,000 households	(1) Low
Benefit Adequacy: What proportion of the cost of a nutritious basket of food does the Policy Set give households on average?	>50% of basket	(3) High
	40% - 50% of basket	(2) Medium
	<40% of basket.	(1) Low

As per Steele (2007), the adequacy of the benefit is assessed relative to the cost of a nutritious food basket, depending on household size and region. If the policy set allocates benefits that are, on average, greater than 50% of the cost of the basket, it scores well. If the policy set awards a benefit that is less than 40% of the cost of the basket, then it scores poorly. Anything in between scores moderately.

6.2. Horizontal Equity

The horizontal equity criterion evaluates the eligibility policy option's ability to make fair and equitable distinctions among households based on need. This criterion has three measures (see Table 6.2).

The first measure assesses the eligibility policy option's ability to make distinctions among households with similar incomes but different sizes and compositions. The percentage of eligible households with a large number of dependants is used as a proxy measure for this concept, where large is defined as three or more. Within my sample, there are approximately 15,000 working renter households with three or more dependant children. Therefore, if the eligibility criterion is able to include 50% or more of these households, then the option scores well. Conversely, if less than 30% are eligible, then the options scores poorly. Anything in between scores moderately.

Table 6.2 Horizontal Equity Criteria and Measures for Policy Analysis

Description	Measure	Rating
Household Size and Composition: What percent of households with three or more dependant children are eligible under the eligibility option?	≥50% of households	(3) High
	30% ≤ households < 50%	(2) Medium
	<30% of households	(1) Low
Household Location: Of eligible households, what percentage are from suburban regions?	≤15% of households	(3) High
	25% > households ≥ 15%	(2) Medium
	>25% of households	(1) Low
Implicit Affordability Problems: What percent of households with suitability problems are eligible?	≥75% of households	(3) High
	50% ≤ households < 75%	(2) Medium
	<50% of households	(1) Low

The second measure assesses the eligibility policy option's ability to make meaningful distinctions between households living in high-, medium- and low-cost regions. Households living in urban areas must contend with the high cost of housing, while households living in rural regions require greater resources for transportation. Therefore, the percentage of eligible households from suburban regions is used as a proxy measure for this concept. In my sample, approximately 12,400 (14%) of working families are from suburban regions. In contrast, 78% and 8% are from urban and rural areas, respectively. Thus, if fewer than 15% of eligible households are from suburban regions, the eligibility option scores well. Conversely, if more than 25% of eligible households are from suburban regions, the option scores poorly. Anything in between is given a moderate score.

The third measure evaluates the extent to which the eligibility option is able to capture a broader definition of affordability – specifically, those households that would have greater affordability problems if they were not living in dwellings that are physically inadequate or crowded. I use the percentage of eligible households with suitability problems as a proxy measure for this concept. In my sample, approximately 16% of working families in the private rental market have suitability problems – 14,700 households. If greater than 75% of these households are considered eligible, the option

scores well. Conversely, if fewer than 50% of these households are eligible, the option scores poorly. Anything in between is given a moderate score.

6.3. Vertical Equity

The vertical equity criterion evaluates the policy set's ability to make fair and equitable distinctions among households based on their income level, by allocating subsidies in a progressive pattern. Vertical equity is evaluated using the policy set's mean marginal effective tax rate. Policy sets with higher mean marginal effective tax rates award larger benefits to low-income households. If the policy set has a METR greater than 70%, it scores well. If the METR is below 40%, it scores poorly. Anything in between is given a moderate score (see Table 6.3).

Very high METRs, while allocating generous and progressive benefits, may pose trade-offs with work incentives. However, this may be partially mitigated to the extent that benefit clawbacks may not be transparent to recipients. Furthermore, under the current design of RAP, when the benefit reaches the monthly maximum, the METR drops to zero, and thus no longer poses a work disincentive.

Table 6.3 Vertical Equity Criteria and Measures

Description	Measure	Rating
Mean Marginal Effective Tax Rates: What is the mean effective marginal tax rate?	METR ≥ 70 %.	(3) High
	40% ≤ METR < 70%	(2) Medium
	METR < 40%	(1) Low

6.4. Administrative Acceptability

The administrative acceptability criterion evaluates the policy set's acceptability to the provincial housing authority. This criterion has three measures (see Table 6.4).

The first measure evaluates the policy set's complexity to design and maintain. Greater complexity breeds higher administration costs, which needs to be balanced

against the objectives of the program. Issues that increase program design and implementation complexity include rent and income standards based on household size and location. If the policy set is substantially more complex to design and maintain than the status quo, the policy set receives a low score. If the policy set is of similar complexity to the status quo, it scores moderately. Conversely, if the policy set requires less expertise to design and maintain than the status quo, it scores high.

Table 6.4 Administrative Acceptability Criteria and Measures for Policy Analysis

Description	Measure	Rating
Program Design Complexity: How complex is the program to design and maintain for the provincial housing authority?	Less complex than status quo	(3) High
	No more or no less complex that status quo	(2) Medium
	More complex than status quo	(1) Low
Participation Rates: How relatively easy or difficult is it to communicate eligibility to the target population?	Improves participation rates	(3) High
	No effect on participation rates	(2) Medium
	Reduce participation rates	(1) Low
Moral Hazard: At very low levels of household income, what percentage of increased housing consumption does the policy set subsidize at the margin?	Marginal subsidization rate <90%	(3) High
	90% < marginal subsidization rate <100%	(2) Medium
	Marginal subsidization rate >100%	(1) Low

The second measure evaluates the extent to which the policy set incentivizes high participation rates among target households. High participation rates allow provincial housing authorities to reduce social housing wait lists and to meet their program objectives of improving housing affordability and stability[16]. Simple income cut offs that depend on factors easily observable to the households (such as the city they live in, or the number of individuals in their family) are likely to result in higher participation rates; these eligibility options score well. Issues that reduce program communicability include requiring households to calculate residuals, or to parse through

[16] RAP's current application process presents a moderate barrier to participation, as it requires households to submit a sizeable application package. A simplification of the application process would probably increase the program participation rate.

technical language; these options score poorly. Eligibility options based on STIRs score moderately.

The final measure evaluates the policy sets based on their moral hazard implications. Because housing allowances change the relative price of housing consumption for their recipients they may create an incentive to unduly increase housing consumption. The policy set's susceptibility to this problem depends, in part, on its marginal subsidization rate, which increases as household income decreases. Therefore, if the policy set has a subsidization rate greater than 100 percent at very low levels of income (defined as $10,000 gross household income or less), then the policy set scores poorly. Conversely, if the policy set has a subsidization rate that is below 90% at very low-levels of income, the set scores well. Anything in between scores moderately. However, this marginal subsidization rate is important only to the extent that households are initially consuming below the monthly rent and benefit maximums. If they are consuming near or above the maximums, any substantial increase in their shelter consumption will be funded entirely from their own pocket.

Chapter 7. Analysis of Policy Sets

Using the criteria and measures presented in the previous chapter, the eight policy sets are analyzed here. The analysis summarized in Table 7.1 reflects equal weighting of all criteria, and thus allows the reader to understand the trade-offs of each policy set. However, in order to address the policy problem identified by my study, my analysis gives the greatest weight to the horizontal equity criterion. Policy makers may allocate different weights, depending on the specific objectives of their program or policy.

7.1. Status Quo: 30% STIR and Gap Method

With respect to improving the welfare of families, the status quo performs adequately. Under this policy set, approximately 27,000 households are eligible, or 30% of all working families renting in the private market. Among recipient households, this policy set delivers a benefit that is, on average, 42% of cost of a nutritious food basket. This represents a considerable increase in the consumption potential of low-income households, as the benefit frees up income to be spent on other essentials. However, large variation exists within this average; the adequacy of the benefit in my sample ranged from a high of 117% of the cost of the food basket, to a low of 5%, with a median value of 21%.

As hypothesized in the literature, my analysis finds that the 30% STIR creates horizontal equity problems. On one hand, the 30% STIR does a relatively good job of including households many dependant children. In my sample, approximately 15,000 working households in the private rental market had at least three dependant children, and of these households, 38% were eligible under the 30% STIR. These households represent 21% of the 27,000 households eligible under the 30% STIR. This may seem low, but it is important to keep in mind those households with three or more dependants account for only 16% of working families in the private rental market. Thus, this suggests

Table 7.1 Analysis of Policy Sets

	30% STIR		Adjusted STIR		Residual Income		HIL	
	Gap	Transfer	Gap	Transfer	Gap	Transfer	Gap	Transfer
Family Welfare	2.0	2.0	1.5	1.5	2.0	2.0	2.0	2.0
Horizontal Equity	1.7	1.7	2.0	2.0	2.0	2.0	2.7	2.7
Vertical Equity	1.0	3.0	1.0	3.0	2.0	3.0	1.0	2.0
Admin. Accept.	2.3	1.7	2.3	1.7	1.0	1.8	1.8	2.3
Total Score	7.0	8.3	6.8	8.2	7.0	8.8	7.5	9.0

Note: The scores of the criteria with multiple measures have been averaged to give a score between 1 and 3.

Table 7.2 Horizontal Equity Analysis of Eligibility Options

Horizontal Equity Measures	30% STIR	Adjusted STIR	Residual Income	HIL
Number of Dependants	2.0	2.0	1.0	3.0
High-Cost Regions	1.0	2.0	3.0	2.0
Implicit Affordability Problems	2.0	2.0	2.0	3.0

that the 30% STIR has performed relatively well at creating equitable distinctions among households based on the number of dependants that they have to support.

In contrast, however, the STIR performed poorly at creating equitable distinctions between high- and low-cost areas. Of the 27,000 households that were eligible under the 30% STIR, 27% percent were from suburban regions. This suggests that suburban households, who have the least costly shelter and non-shelter baskets, are over-represented among eligible households. Thus, the 30% STIR does a poor job at creating equitable distinctions among households based on the cost of a basket of shelter and non-shelter goods. This is particularly problematic in the context of British Columbia, which has high-cost, high-rent regions like Metro Vancouver and Victoria.

The 30% STIR is also unlikely to capture households with implicit affordability problems – i.e. those households that would have high shelter burdens if their dwellings were not overcrowded or in disrepair. My sample contains approximately 15,000 low-income, working families in the private rental market living in shelter that is unsuitable for their household size and composition. Of these households, only 50% are eligible under the 30% STIR. This is in part because the 30% STIR creates implicit rent minimums, which unfairly exclude families living in crowded conditions but with low rent burdens. This is especially problematic for larger households, and is a significant equity issue.

Finally, this policy set is not as vertically equitable as is desirable. The policy set has a relatively low average METR at 31%, which means that benefits do not favour low-income households as much as they could. On the other hand, this suggests that this policy set does not impose significant work disincentives through high collective METR (though again it is not clear how relatively transparent or opaque METR are to the average low-income household).

In contrast, this policy set is administratively attractive. All policy sets that I've chosen to analyze require the program administrators to carefully design subsidization rates that vary inversely with income, as well as to choose monthly rent and benefit maximums. However, this policy set does not require the creation of locally defined HILs or non-shelter baskets. Furthermore, this eligibility option presents few participation

disincentives; while households do need to calculate their STIR based on this year's rent and last year's gross household income, this is intuitive enough. This policy set does create a large incentive to increase housing consumption at very low levels of income - the program subsidizes up to 90% of the marginal increase in rent – as long as the household is not already consuming above the monthly rent maximum.

Overall, the 30% STIR & Gap method performs satisfactorily under my analysis, especially in terms of administrative acceptability. As currently administered, this program is able to deliver a benefit that considerably improves the consumption potential of recipient households. However, this policy set performed poorly in terms of horizontal and vertical equity.

7.2. 30% STIR and Transfer Method

This policy set uses the same eligibility criterion as the status quo, and therefore considers the same households as eligible. It also creates the same horizontal equity problems: while this eligibility option is able to include a high proportion of households with three or more dependants, it is unable to distinguish among urban, suburban, and rural areas in an equitable way. Furthermore, it tends to exclude households with implicit affordability problems.

This policy set improves upon the status quo by allocating benefits in a more progressive method. This policy set has an average METR of 84%, which means that benefits are highly concentrated on low-income families; on the other hand, this high METR might also impose large work disincentives. Due to this distributional difference, this policy set is able to provide a benefit that is 47% of the cost of a nutritious food basket, on average[1]. Thus, this policy set is able to moderately improve the allocation of benefits over the status quo, notwithstanding work disincentive effects.

[1] Though again there is considerable variation within this average, with a low of 5%, a high of 184% and a median of 21%.

This policy set is less administratively attractive than the status quo. While it similarly encourages high participation rates among the target population, it is more difficult for the provincial housing authority to design and maintain. This is because it requires the province to maintain estimates of the cost of an acceptable basket of non-shelter goods, which varies by both household size and region. This will require some subjective decision about what geographic region the basket should vary by (e.g. by city, regional district, population size, etc.). Depending on the degree of variation within the province, there will be a trade-of between targeting accuracy and the portability of the benefit. Finally, this policy set has a marginal subsidization rate that is higher than the status quo at 94%. This means that there is less incentive for low-income households to curb their shelter expenditures, which may escalate the costs of the program in the short term. In the long-term, it may induce program administrators to further restrict eligibility criteria for the benefit. However, this moral hazard problem is relevant only as far as households are consuming below the monthly rent and benefit maximums; at any level above this, any rent increase will be funded completely by the household.

Overall, this policy set is able to improve upon the status quo in terms of vertical equity, but not family welfare or horizontal equity. Furthermore, it makes several compromises in terms of administrative acceptability. This policy set is not a desirable alternative to the status quo.

7.3. Adjusted STIR and Gap Method

This policy set uses adjusted gross household incomes and STIRs to determine eligibility. Because this policy set utilizes a broader definition of affordability, the number of households eligible for the benefit is increased relative to the status quo – 33,000 households, or just under 40% of all working families in the private rental market. However, because of this expansion in eligibility, the benefits must be spread more thinly across recipient households. This policy set provides a benefit that is only 32% of the cost of a nutritious food basket on average.

This policy set is able to slightly improve upon the status quo in terms of horizontal equity. Of the 33,000 households that are eligible under this option, 20% are

from suburban regions, while 72% and 8% are from urban and rural areas, respectively. Thus, this policy set is able to make more equitable distinctions between high- and low-cost regions. However, this policy set performs no better than the status quo at including households living in shelter that is crowded or physically inadequate: of the 15,000 working families with suitability problems, this option includes 51%. However, this is not surprising given that, similar to the status quo, this option creates implicit rent minimums. Where this policy option does perform in an unexpected way is in terms of the number of large households that are eligible. Of the 15,000 large working families in the private rental market, this eligibility option manages to include only 37%. Thus, the adjusted STIR is unable to address the problem of larger households as theorized by the literature.

This policy set is able to modestly improve upon vertically equity compared to the status quo – it has an average METR of 37%. This suggests that benefits will be more concentrated on low-income households, but that work disincentives are still modest.

This policy set is less administratively attractive that the status quo. First, the incentive to curtail housing consumption for households with subsidies below the monthly rent and benefit maximums is quite low; this policy set has a marginal subsidization rate that reaches 99% at very low levels of income. On the other hand, this policy set is no more complex to design than the status quo, and has decent participation incentives.

Overall, this policy set is unable to improve upon the status quo in terms of horizontal equity, though it is able to modestly improve vertical equity. Furthermore, this policy set compromises on family welfare and administrative acceptability. This policy set is not an attractive alternative to the 30% STIR.

7.4. Adjusted STIR and Transfer Method

This policy set uses the same eligibility criterion as the previous set, and therefore considers the same households as eligible. It has the same horizontal equity advantages and disadvantages: namely, that while it is able to make more equitable

distinctions between high- and low-cost regions, it is unable to include households with many dependants and those households with physical adequacy or crowding issues.

This policy set is more vertically equitable than the status quo, with an average METR of 81%. This means that the benefits are more concentrated on low-income families (though work disincentives may be substantial). However, despite this distributional difference, this policy set is only able to provide a benefit that is 39% of the cost of a nutritious food basket, on average. Thus, this policy set is able to moderately improve the allocation of benefits over both the previous option and the status quo.

This policy set is less administratively attractive than the status quo. First, it is more complex to design than the status quo, because it requires information about the cost of a modest basket of non-shelter goods that varies regionally. As previously discussed, this requires subjective decisions about how this basket should be constructed. However, this policy set is somewhat attractive in that it provides some disincentive to over consume housing at very low levels of income: it has a maximum subsidization rate of 85%, which may provide some small incentive for beneficiaries not already consuming above the monthly rent maximums to shop around for affordable accommodation.

As a whole, this policy set is able to modestly improve upon the status quo in terms of horizontal and vertical equity. However, it makes significant compromises in terms of family welfare and administrative acceptability. This is not an attractive alternative to the status quo.

7.5. Residual Income and Gap Method

This policy set uses residual incomes to determine household eligibility, which are compared to the income required to purchase a non-shelter basket of goods as defined by the Market Basket Measure. The Market Basket Measure is a restrictive basket, and thus is less generous an eligibility criterion for small households. As a result, only 22,000 households are eligible, representing only 25% of working families in the private rental market. However, because fewer households are eligible, the benefits are

more substantial for recipient households. This policy set provides a benefit that is 54% of the cost of a nutritious food basket, on average. This represents a significant increase in purchasing power of low-income households.

The literature suggests that this policy set should be able to improve upon the status quo in terms of horizontal equity; specifically, it should be better at including large households with many dependants and households from high-cost, high-rent regions[2]. However, this point is only partially supported by my analysis. Of the 22,000 households eligible under this option, 9% are living in suburban regions. In contrast, 75% and 13% from rural and urban regions are eligible, respectively. This suggests that the Residual Income method is indeed able to make equitable distinctions between households in high- and low-cost regions. Furthermore, the Residual Income method includes 40% of households with crowding issues.

In contrast, very few households with three or more dependants are eligible under this option. Of the 15,000 large families in my sample, only 3,500 are eligible under this policy set – a mere 24%. Similarly, large households represent only 16% of the 22,000 households that are eligible under this option. This suggests that the Residual Income method actually performs worse than the status quo in terms of making equitable distinctions between large and small families.

This policy set is able to modestly improve upon vertically equity compared to the status quo – it has an average METR of 47%. This suggests that benefits will be more concentrated on low-income households, yet work disincentives may still be modest.

This policy set is not very administratively attractive. First, the policy set has some moderate disincentive effects because it bases eligibility on residual incomes, which are a less intuitive concept that STIRs. This might lead some potential beneficiary households to think they are ineligible. Furthermore, this policy set has problematic moral hazard implications. At very low-levels of income, the marginal subsidization rate

[2] Though it is not expected to be able to improve upon the status quo in terms of including those households with implicit affordability problems, such as those living in dwellings that are physically inadequate or crowded.

exceeds 100%, which means that households have an incentive to increase their housing consumption up to the point of the rent maximum. Furthermore, because this policy set bases eligibility on a cost standard, the housing authority would have to define the cost of a non-shelter basket of goods that varies regionally and by household size.

7.6. Residual Income and Transfer Method

This policy set uses the same eligibility criterion as the previous set, and therefore considers the same households as eligible. Like the previous policy set, it has problems including households with more than three dependants, but is successful at making equitable distinctions between households in high- and low-cost areas, and at including those with implicit affordability problems. Furthermore, the policy set is able to provide a benefit that is 55% of the cost of a nutritious food basket, on average. This represents a significant increase in the purchasing power of low-income households.

This policy set is more vertically equitable than any other policy set that I consider – it has an average METR of 94%. This means that the benefits from this policy set are highly concentrated on low-income families. However, this may also mean that this policy set has most significant work disincentive effects.

This policy set is also modestly administratively attractive, in that for households that are consuming below the monthly rent and benefit maximums, it does provide some small incentive not to increase shelter consumption – its marginal subsidization rate never exceeds 85%. However, this policy set is somewhat more complex than the status quo to design, in that it requires the housing authority to define the cost of a non-shelter basket of goods that varies by location and household size. Finally, this policy set may provide modest disincentive effects in terms of household participation. This is because eligibility is based on residual incomes, which are a less intuitive concept that STIRS, and may confuse the target population about whether they are eligible or not.

Overall, this policy set performed well on my analysis. This policy set is able to improve upon the status quo in terms of horizontal and vertical equity, as well as the adequacy of the benefit. However, it does make some compromises in terms of

administrative acceptability. *This policy set represents an attractive alternative to the status quo*.

7.7. Housing Income Limit and Gap Method

This policy set uses gross household incomes to determine eligibility, which are compared to locally defined Housing Income Limits for a given unit size. This eligibility option is less generous than the status quo to smaller households in suburban regions, and more generous to larger households in urban regions. As a result, 31,000 households are eligible for benefits, representing just over 35% of working families in the private rental market. However, due to the slightly different composition of eligible households, this policy set is able to provide a benefit of similar size to the status quo: 43% of the cost of a nutritious food basket, on average. This represents a considerable increase in purchasing power for low-income households.

Theoretically speaking, this eligibility option should be able to improve upon the status quo in terms of horizontal equity. This is supported by my analysis. Of the 15,000 working families in the private rental market with three or more dependants, some 7,000 are eligible under this policy set. These large households represent 23% of the 31,000 households that are eligible under this eligibility option. This suggests that the Housing Income Limit is able to make equitable distinctions between large and small households. Furthermore, the HIL is able to include 76% of households with suitability problems, suggesting that the HIL is able to include those households with implicit affordability problems. Finally, of the 33,000 households eligible under this option, 21% are from suburban regions, while 70% and 9% are from urban and rural areas respectively. Thus, this policy option performs satisfactorily at making equitable distinctions between high- and low-cost areas.

This policy set is no more vertically equitable than the status quo: its average METR is 33%, which suggests that the benefits are not as concentrated on low-income households as they could be.

This policy set is modestly administratively attractive. The fact that it relies upon locally defined cost standards for dwellings of different size means that it is more complex to design and maintain. However, given that the average market rents are available annually from the CMHC's Rental Market Survey, this is not too significant a barrier. Furthermore, this policy set includes few or no participation disincentives, because eligibility is based on characteristics that are readily apparent to the household – i.e. their household size and location. However, this policy set does have problematic moral hazard implications: at very low-levels of income, the marginal subsidization rate for this policy set exceeds 100%. This means that very low-income households have an incentive to increase their housing consumption until it hits the maximum monthly rent and benefit limits. This could inflate the cost of the program.

As a whole, this policy set is able to improve upon the status quo in terms of horizontal equity, and makes no sacrifices in terms of vertical equity and benefit adequacy. However, it does make some minor concessions in terms of administratively acceptability, and has some negative budgetary implications. This policy set is a modest improvement on the status quo.

7.8. Housing Income Limit and Transfer Method

This policy set uses the same eligibility criterion as the previous set and therefore considers the same households eligible. It has the same horizontal equity advantages: namely, it includes a significant portion of families with three or more dependants, suitability issues, and a representative number of suburban households.

This policy set is more vertically equitable than the status quo, with an average METR of 69%. This means that the benefits are more concentrated on low-income families, while work disincentives are moderately high. Furthermore, the policy set is able to provide a benefit that is 44% of the cost of a nutritious food basket, on average. Thus, this policy set is able to provide a benefit that is on par with the status quo in terms of size, but in a more horizontally equitable fashion.

This policy set is administratively attractive. Eligibility is based on factors that are readily apparent to the households, which means that there are few program participation disincentives. Furthermore, its subsidization rate never exceeds 80%, so there is some incentive to curb shelter consumption for households consuming below the monthly rent and benefit maximums. However, this policy set is more complex to design and maintain than the status quo. First, it requires the housing authority to define local income limits for units of different sizes. Second, the housing authority must define the cost of a basket of non-shelter goods that varies by household location and size. In addition, as under all policy sets, the housing authority must carefully design subsidization rates that vary inversely with income, as well as set rent and benefit maximums.

Holistically, this policy set performed well under my analysis. This option is able to improve upon the status quo in terms of horizontal and vertical equity, without making compromises to the adequacy of the benefit or the number of households assisted. The policy set is almost as administratively attractive as the status quo. *This policy set is an attractive alternative to the status quo.*

Chapter 8. Recommendations

8.1. Primary Recommendation

The analysis from this study has revealed that the 30% STIR is a methodologically flawed definition of affordability, which creates horizontal and vertical equity problems when used to allocate shelter subsidies in housing allowance programs. Yet despite these flaws, the 30% STIR is administratively attractive in its simplicity. It is also relatively successful at reducing the housing burdens of low-income working families. Thus, in order to be considered an attractive alternative to the status quo, a policy set must be able to improve horizontal and vertical equity, without unduly sacrificing household welfare or administrative ease. The analysis of the preceding chapter has identified two such policy sets.

The first policy set uses Residual Incomes to determine eligibility and the Income Transfer method to allocate benefits. This is the most vertically equitable policy set in my analysis, and does the most to increase the purchasing power of low-income families. It is also arguably the most conceptually valid definition of housing affordability, as it makes explicit the relationship between housing and non-housing expenditure. However, my analysis has revealed that the Residual Income method, as operationalized within Canada, disqualifies a significant portion of moderate-income households, including many large urban families with children. This is unattractive in a housing allowanced targeted at low-income families.

The second policy set, which uses Housing Income Limits to determine eligibility and the Income Transfer method to allocate benefits, is the most horizontally equitable policy set that I analyze. It is able to make equitable distinctions among households based on size, composition, and location, and is able to include a significant proportion of the population living in dwellings that are physically inadequate or overly crowded.

However, it relies on a less conceptually valid definition of affordability than the Residual Income method, as it estimates the cost of an adequate standard of living using median (or average) rents and the 30% STIR.

Despite this conceptual flaw, the latter policy set best addresses the horizontal and vertical equity issues created by the 30% STIR. Therefore, my primary recommendation is that provincial housing authorities adopt the Housing Income Limit in conjunction with the Transfer Method to allocate subsidies in housing allowances targeted at low-income families. In housing allowances aimed at seniors or individuals with disabilities, either the Housing Income Limit or the Residual Income method in conjunction with the Transfer Method represents an improvement over the status quo.

8.2. Policy implementation

The implementation of my primary recommendation requires provincial housing authorities to: (1) design local income limits that vary by household size, composition, and location; and (2) define a non-shelter basket of budgetary essentials that similarly varies by household size, composition, and location. The former is relatively simple to implement given that the CMHC's annual *Rental Market Survey* reports the average market rents for individual population centres and census sub-divisions. However, defining a modest basket of non-shelter goods is more difficult to justify because what constitutes an acceptable basket of essentials is subjective. Nonetheless, the most logical way to executive this concept is to base the basket on Statistics Canada's *Market Basket Measure*, which reports a conservative estimate of the cost of budgetary essentials for different population centre sizes. Specifically, the non-shelter basket should be defined as the MBM's total threshold, less the shelter portion.

One caveat to this implementation strategy is that, while both Rental Market Survey and the Market Basket Measure vary regionally, they do so by different measures; by individual population centres and census sub-divisions in the Rental Market Survey and by population centre size in the Market Basket Measure. However, this likely cannot be helped without the housing authority undertaking a major data

collection project to estimate the cost of a non-shelter basket of goods that varies by individual population centres and/or census sub-divisions.

Finally, it should be noted that the eligibility criterion and the benefit allocation method used in my primary recommendation depend on different definitions of income: gross and disposable household income respectively. This adds an additional step to the application progress for eligible households. However, since almost all housing authorities verify the applicant's income through the Canadian Revenue Agency, this does not represent a significant increase in administrative burden.

8.3. Supplementary Recommendation

The affordability issue not wholly addressed by my primary policy recommendation is the issue of implicit affordability problems – i.e. those households that would have higher shelter burdens if they were not living in shelter that is physically inadequate or overly crowded. These households are, either by choice or by necessity, under-consuming shelter in order to be able to afford other budgetary essentials (e.g. food) or to be closer to other necessary amenities (e.g. school or employment). Implicit affordability problems are problematic in the current policy context because they are not captured adequately by shelter cost-to-income ratios, which are based on actual shelter expenditures. Thus households with implicit affordably problems are not eligible for subsidies at the margin; or if they are eligible, their benefit does not reflect the true depth of their affordability problem.

This issue can be only partially mitigated by my primary policy recommendation, which recommends that the status quo be replaced by housing income limits and the income transfer method to determine eligibility and allocate subsidies respectively. Most households with implicit affordability problems will be eligible under housing income limits because HILs do not impose implicit rent minimums. However, because the income transfer method still allocates subsidies based on actual shelter expenditures, the household's subsidy may still not reflect the true depth of their affordability problem.

The most obvious way to address this problem is to conduct unit inspections. In order to respect the privacy of households, these unit inspections should be limited to those households self-reporting physical adequacy or crowding issues, and consenting to the inspection. The benefit could then be allocated using the income transfer method, but replacing the household's actual shelter expenditures with an estimate of the median cost of an acceptable and appropriately sized unit in that community. Alternatively, the household could be offered a one-time moving bonus in order to help facilitate their transition to a more suitable unit. While these policies may modestly increase the housing program's susceptibility to fraud, as well as adding an additional administrative burden, they would do much to address the housing burdens of households at the greatest risk of poverty, eviction, and homelessness.

Chapter 9. Conclusion

The Canadian definition of affordability depends on the 30% Shelter Cost-to-Income Ratio. This definition of affordability, though the most commonly used indicator of housing stress, is an arbitrary and methodologically flawed concept that fails to adequately account for a household's need to consume both shelter and non-shelter goods. This is problematic not only because it distorts the breadth and depth of affordability problems for low-income households, but also because it creates inequities in the allocation of housing subsidies. In particular, the 30% STIR inequitably diagnoses and addresses the affordability problems of large families, urban households, and people living in shelter that is inadequate or unsuitable.

Despite the ubiquity of the 30% STIR, its shortcomings are well understood. Academic consensus suggests that the most methodologically sound definition of affordability for low-income households is the Residual Income method, which considers shelter to be unaffordable when a household is not able to purchase a modest basket of non-shelter goods after paying rent. This definition should replace the 30% STIR as the Canadian Mortgage and Housing Corporation's definition of affordability for public policy purposes.

However, this study argues that the most *useful* definition of affordability will always depend on the context of the housing program within which it operates. Thus, this study analyzes the 30% STIR and 3 alternative definitions of affordability within the design, objectives, and fiscal constraints of a classic Canadian housing allowance – the BC *Rental Assistance Program* for low-income families. In this context, it is found that all four measures of affordability have strengths and weaknesses. The 30% STIR, though administratively simple, creates significant horizontal equity issues in terms of program eligibility. Nor are these horizontal equity issues remediable by adjusting the 30% STIR for household size. Conversely, the Residual Income Method, though conceptually

sound, is difficult to operationalize in the Canadian context without disqualifying a significant portion of moderate-income households, including many large families with children.

This study finds that the most useful way to determine program eligibility within housing allowance programs is the Housing Income Limit. Housing Income Limits represent the income required to purchase the median rent of an appropriately sized unit within a given community for no more than 30% of gross household income. While not as conceptually sound as the Residual Income Method, HILs are the most equitable measure of affordable as they are best able to include large families, urban households, and people living in inadequate and unsuitable shelter. Furthermore, benefit allocation with affordable housing programs should be modified to more closely reflect the cost of purchasing an adequate standard of living, rather than being based on the 30% STIR. Finally, housing authorities could conduct a limited number of unit inspections in order to adequately address the implicit affordability problems of households living in physical inadequate or overly crowded shelter.

The findings of this study have implications for all provincial housing allowance programs with similar objectives and design, including Alberta, Saskatchewan, and Manitoba. This study also suggests that future research should consider the unintended consequences of using the 30% STIR to determine eligibility and allocate benefits in social housing and rental supplement programs. This is imperative if Canada wants to return to its former status as a nation known for the strength and fairness of our social housing policies.

References

BC Department of Housing. (1976). Shelter Allowance for Elderly Renters. Victoria: Queen's Printer.

BC Housing. (2006). BC Housing Annual Report 2005/06. Victoria: BC Housing.

BC Housing. (2007). Annual Report: Housing Matters 2006/07. Victoria: BC Housing. http://doi.org/10.1136/jech.55.1.1

BC Housing. (2008a). Annual Report: BC Housing 2007/08. Victoria: BC Housing. Retrieved from Housing, B. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2008b). Annual Report: Housing Matters 2008/09. Vict: BC Housing. Retrieved from Housing, B. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2008c). Rental Assistance Calculator. Victoria: BC Housing.

BC Housing. (2008d). Rental Assistance Program Brochure. BC Housing.

BC Housing. (2009). Annual Report: Housing Matters 2009/10. Victoria: BC Housing. Retrieved from Housing, B. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2011). Annual Report: Housing Matters 2010/11. Victoria: BC Housing. Retrieved from Housing, B. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2012). Annual Report: Housing Matter 2011/12. Victoria: BC Housing. Retrieved from Housing, B. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2013). Annual Report: Housing Matters 2012/13. Victoria: BC Housing. Retrieved from http://www.bchousing.org/aboutus/Reports/AR

BC Housing. (2014a). *BC Housing: 2014 Housing Income Limits (HILs)*. Vancouver. Retrieved from http://www.metrovancouver.org/about/publications/Publications/2014_HILs.pdf

BC Housing. (2014b). SAFER: Confirm your Eligibility. Retrieved February 10, 2015, from http://www.bchousing.org/Options/Rental_market/SAFER/Eligibility

BC Housing, & Canadian Mortgage and Housing Corporation. (2014, April). Benefits Increase Under Rental Assistance Programs. *BC Housing Median Releases*. Retrieved from http://www.bchousing.org/Initiatives/Providing/RAP/news/2014/04/16/11372_1404160943-880?pageNumber=&cmbYear=&cmbMonth=&bchProgram=

Bramley, G. (1990). *Access, affordability and housing need*. University of Bristol.

Burke, P., Casey, C., Doepner, G., Howenstine, J., Brown, P., & Streich, P. (1981). *Housing Affordability Problems and Housing Need In Canada and the United States: A Comparative Study*. Ottawa .

Canada Mortage and Housing Corporation. (2013). *Rental Market Report - British Columbia Highlights*. Retrieved from https://www03.cmhc-schl.gc.ca/catalog/productDetail.cfm?lang=en&cat=59&itm=19&fr=1405192840652

Canada Task Force on Program Review. (1985). *Housing Programs in Search of Balance: A Study Team Report fo the Task Force on Program Review*. Ottawa.

Canadian Mortgage and Housing Corporation. (2011a). Characteristics of Households in Core Housing Need Canada. Ottawa: Canadian Mortgage and Housing Corporation.

Canadian Mortgage and Housing Corporation. (2011b). Housing Conditions and Core Housing Need. Ottawa. Retrieved from http://www.cmhc.ca/en/corp/about/cahoob/data/data_013.cfm

Canadian Mortgage and Housing Corporation. (2013). *Rental market report: Canada Highlights*. Ottawa.

Canadian Mortgage and Housing Corporation. (2014). Housing in Canada Online: Definitions of Variables. Retrieved September 9, 2014, from http://cmhc.beyond2020.com/HiCODefinitions_EN.html

Capital Region Housing Corporation. (2011). Direct Rent Supplement. Retrieved March 3, 2015, from http://crhc.ca/programs-and-services/direct-rent-supplement-program.aspx

Fack, G. (2006). Are housing benefit an effective way to redistribute income? Evidence from a natural experiment in France. *Labour Economics*, *13*(6), 747–771. http://doi.org/10.1016/j.labeco.2006.01.001

Finkel, M., Climaco, C., Khadduri, J., & Steele, M. (2006). *Housing Allowance Options for Canada*. Cambridge, MA.

Gabriel, M., Jacobs, K., Arthurson, K., & Burke, T. (2005). *Conceptualising and measuring the housing affordability problem authored by*. *National Research Venture 3: Housing Affordability for Low Income Australians*. Retrieved from http://hdl.handle.net/2328/27049

Gibbons, S., & Manning, A. (2006). The incidence of UK housing benefit: Evidence from the 1990s reforms. *Journal of Public Economics*, *90*(4-5), 799–822. http://doi.org/10.1016/j.jpubeco.2005.01.002

Government of Saskatchewan. (2013). Saskatchewan Rental Housing Supplement (SRHS). Retrieved March 3, 2015, from http://www.socialservices.gov.sk.ca/srhs

Hancock, K. E. (1993). “Can”t Pay? Won’t Pay?' or Economic Principles of “Affordability.” *Urban Studies*, *30*(1), 127–145. http://doi.org/10.1080/00420989320080081

Housing and Community Development Manitoba. (2015). Rental Housing Program Eligibility. Retrieved March 3, 2015, from http://www.gov.mb.ca/housing/mh/progs/pil.html#affordable

Howenstine, E. J. (1983). *Housing Vouchers: A Comparative International Analysis* . New Brunswick : Center for Urban Policy Research.

Hulchanski, J. D. (1984). *Shelter Allowances and Canadian Housing Policy: A review and Evaluation* (No. 147). Toronto.

Hulchanski, J. D. (1995). The concept of housing affordability: Six contemporary uses of the housing expenditure-to-income ratio. *Housing Studies*, *10*(4), 471–491. http://doi.org/10.1080/02673039508720833

Kemp, P. A. (2000). The role and design of income-related housing allowances. *International Social Security Review*, *53*(3), 43–57.

Kemp, P. A. (2007). Housing Allowances in Context. In P. A. Kemp (Ed.), *Housing Allowances in Comparative Perspective* (pp. 1–16). Bristol: The Policy Press.

Kutty, N. K. (2005). A new measure of housing affordability: Estimates and analytical results. *Housing Policy Debate*, *16*(1), 113–142. http://doi.org/10.1080/10511482.2005.9521536

Laferrère, A., & Le Blanc, D. (2004). How do housing allowances affect rents? An empirical analysis of the French case. *Journal of Housing Economics*, *13*(1), 36–67. http://doi.org/10.1016/j.jhe.2004.02.001

Maclennan, D., & Williams, R. (1990). Affordable Housing in Britain and the United States. *Joseph Rowntree Foundation*.

Mccarthy, T. (2005). *SHELTER AID FOR ELDERLY RENTERS: A PROGRAM EVALUATION FROM A COMMUNITY PERSPECTIVE*.

Patrick, C. (2014). *Aboriginal Homelessness in Canada: A Literature Reivew*. Toronto.

Poschmann, F. (2008). Still High: Marginal Effective Tax Rates on Low-Income Families. *Backgrounder - C.D. Howe Institute*, *113*, 10. Retrieved from http://search.proquest.com/docview/231063634/fulltextPDF/E8642D2E64D14252PQ/1?accountid=13800

Revenu Quebec. (2015). Shelter Allowance Program. Retrieved March 3, 2015, from http://www.revenuquebec.ca/en/citoyen/situation/faible_revenu/programmes_Allocation-logement.aspx

Robinson, M., Scobie, G., & Hallinan, B. (2006). *Affordability of housing: concepts, measurement and evidence*. *Month*. Wellington. Retrieved from http://www.researchgate.net/publication/5204080_Affordability_of_Housing_Concepts_Measurement_and_Evidence/file/e0b49519bf98fa99bd.pdf

Statistics Canada. (1982). Survey of Family Expenditures Public Use Microdata File 1982. Ottawa: ABACUS. Retrieved from http://hdl.handle.net/10573/41440

Statistics Canada. (1992). Survey of Family Expenditures Public Use Microdata File 1992. Ottawa: ABACUS. Retrieved from http://hdl.handle.net/10573/42014

Statistics Canada. (2002). Survey of Household Spending Public Use Microdata File 2002. Ottawa: ABACUS. Retrieved from http://hdl.handle.net/10573/41380

Statistics Canada. (2011). Table 202-0809: Market Basket Measure Thresholds. Retrieved February 9, 2015, from http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2020809&tabMode=dataTable&srchLan=-1&p1=-1&p2=35

Statistics Canada. (2014). Survey of Household Spending Public Use Microdata File 2011. ABACUS. Retrieved from http://hdl.handle.net/10573/42635

Statistics Canada. (2015). Survey of Household Spending. Retrieved April 7, 2015, from http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3508

Steele, M. (1985a). *Canadian Housing Allowances: An Economic Analysis*. *Ontario Economic Council Research Study*. Toronto: University of Toronto Press.

Steele, M. (1985b). *Housing Allowances: As Assessment of the Proposal for a National Program for Canada*. Guelph. Retrieved from http://www.chba.ca/uploads/Policy Archive/1985/1985-01-31.pdf

Steele, M. (1995). Two Kinds of Canadian Housing Allowance. Toronto: Center for Urban and Community Studies, University of Toronto.

Steele, M. (2001). Housing Allowances in the US under Section 8 and in Other Countries: A Canadian Perspective. *Urban Studies*, *38*(1), 81–103. http://doi.org/10.1080/00420980123221

Steele, M. (2007). Canadian housing allowances. In P. Kemp (Ed.), *Housing Allowances in Comparative Perspective* (pp. 61–85). Bristol: The Policy Press.

Stone, M. E. (2006). What is housing affordability? The case for the residual income approach. *Housing Policy Debate*, *17*(1), 151–184. http://doi.org/10.1080/10511482.2006.9521564

Stone, M. E., Burke, T., & Ralston, L. (2011). *The Residual Income Approach to Housing Affordability : The Theory and the Practice The residual income approach to housing affordability : the theory and the practice*. Australian Housing and Urban Research Institute. Retrieved from http://works.bepress.com/cgi/viewcontent.cgi?article=1009&context=michael_stone

Susin, S. (2002). Rent vouchers and the price of low-income housing. *Journal of Public Economics*, *83*(1), 109–152. http://doi.org/10.1016/S0047-2727(01)00081-0

Van Dyk, N. (1993). *A Review of the Core Housing Need Model and the Allocation and Targeting of Federal Housing Assistance*. Ottawa.

Viren, M. (2013). Is the housing allowance shifted to rental prices? *Empirical Economics*, *44*(3), 1497–1518. http://doi.org/10.1007/s00181-012-0589-x

Appendix A

Methodology

Various detailed aspects of my methodology not covered in Chapter 2 are explained here.

A.1 Determining if Households are in Physically Inadequate Shelter

Assessment of household eligibility and benefit levels under alternative policy options may require the housing authority to determine if a household is living in physically inadequate shelter (referred to by the CMHC as *adequacy*). The CMHC defines physical adequate shelter as not being in need of any major repairs, such as to "defective plumbing or electrical wiring, or structural repairs to walls, floors or ceilings" (Canadian Mortgage and Housing Corporation, 2014). Such a determination on the part of the housing authority would thus require a unit inspection. For my purposes, I must rely on the SHS's physical inadequacy flag (ADEQUACY), which takes on a value of 1 if the household's dwelling is in need of major repairs, and a value of zero otherwise. The vast majority of households in my sample are deemed to be in adequate shelter (90.9%).

A.2. Determining if Household's are Over-Housed or Crowded

Assessment of household eligibility and benefit levels under alternative policy options may require the housing authority to determine if a household is overly crowded. Table A.1 reports Canada's National Occupancy Standards (NOS), which allocate bedrooms based on the age and gender of occupants. Such judgements on the part of a housing authority would thus require a unit inspection. The SHS reports the number of bedrooms in the dwelling (NUMBEDRP), and the number of bedrooms required for the household's size and composition (RQNMBEDP), as defined by the NOS. This concept is encapsulated in the SHS's crowding flag (SUITABLE), which take on a value of one if the household is crowded, and zero otherwise. Thus, a household in my sample is

crowded if the SUITABLE flag is equal to one, and over-housed if NUMBEDRP is greater than RQNMBEDP.

Table A.1 National Occupancy Standards

One Bedroom is allocated for:	• Each cohabiting adult couple • Each lone parent • Unattached household member 18 years of age and over • Same-sex pair of children under age 18 • And additional boy or girl in the family, unless there are two opposite sex children under 5 years of age, in which case they are expected to share a bedroom

Source: (Canadian Mortgage and Housing Corporation, 2014)

A.3. Calculating Adjusted STIRs

Assessment of household eligibility and benefit levels under one of the eligibility policy options requires the calculation of *equivalized* or *adjusted* STIRs. “Researchers use equivalized income measures to take [into] account the number of adults and children that each household’s income has to support, so as to put households of differing composition on a more equal footing when assessing who is well-off and who is not” (Nepal, Tanton, and Harding, 2010, p. 215-216). Several different methods can be employed for equivalizing household income. I use the method most commonly used by recent OECD reports – the square root method. This method involves dividing total household income by the square root of the household size. This expresses household income relative to that of a single person household (i.e. in per capita terms).

Steele (1985) suggests that different STIRs may be appropriate for households of different sizes; specifically, a STIR in excess of 40% for a single-person household, a 30% ratio for a two-person household, and a 25% ratio for three people or more (as cited in Steele, 1995, p. 16). Following her example, I have calculated the equivalized STIR for households of varying sizes via the square root method, assuming that the 30% STIR and $35,000 income cut off are appropriate for a two-person household. Thus if the eligibility option uses adjusted incomes and STIRs, then a household is eligible if their gross household income is below the relevant income limit and above the relevant STIR (see Table A.2).

Table A.2 Adjusted Income Limits and STIRs

Household Size	Income Limit ($ Gross)	STIR
1 person	25,000	43%
2 people	35,000	30%
3 people	43,000	25%
4 people	50,000	21%
5 people	55,000	19%

A.4. Calculating Residual Incomes

Assessment of household eligibility and benefit levels under one of the alternative policy options requires the calculation of *residual incomes*. As discussed in Chapter 3 residual income is the income left over after paying for shelter.

Residual Income affordability standards are usually based on the poverty line within a given country or a budget standard (Kutty, 2005). Canada has no official poverty line, though it does have three low-income measures: the Low-Income Cut Off, the Low Income Measure, and the Market Basket Measure. I base my Residual Income affordability measures on the Market Basket Measure (MBM).

The MBM attempts to provide a measure of the cost of a standard of living that is a "compromise between subsistence and social inclusion" (Statistics Canada, 2011). It is useful for my methodology because it reports the cost of living within each province, with different cost thresholds for regions of different population sizes (see Table A.3). The basket of goods includes a nutritious diet, clothing and footwear, shelter, transportation, and other necessary goods and services (such as personal care items or household supplies). Thus, I base my Residual Income affordability standard on the total threshold for each household size and region, less the respective shelter amount. I refer to this affordability standard as the 'Non-Shelter' amount, or the cost of a modest basket of non-shelter goods throughout this study.

Under eligibility policy options that utilize Residual Incomes, households in my sample are eligible for the housing allowance if their disposable household income

(HHINCTOT plus O201) is equal to or less than the cost of the Non-Shelter basket of goods for their household size and region (see Table A.4).

Table A.3 The Market Basket Measure for British Columbia by Household Size (2009)

Region	1 person	2 people	3 people	4 people
<10,000	$17,630	$24,933	$30,536	$35,250
10,000 – 29,999	$17,638	$24,943	$30,549	$35,275
30,000 – 99,999	$17,638	$24,943	$30,549	$35,275
100,000 – 499,999	$18,146	$25,662	$31,430	$36,292
Vancouver	$18,748	$26,514	$32,472	$37,496

Source: Statistics Canada. Table 202-0809 - Market Basket Measure Thresholds (2011 base) for reference family, by Market Basket Measure region and component, 2011 constant dollars, annual (dollars), CANSIM (database). (Accessed: 2015-02-10)

Table A.4 Non-Shelter Baskets

Region	2 people	3 people	4 people
Urban	$17,495	$21,426	$30,301
Suburban	$16,719	$20,476	$28,958
Rural	$18,551	$22,720	$26,235

A.5. Calculating Housing Income Limits

Assessment of household eligibility and benefit levels under alternative policy options requires the calculation of *housing income limits*. As discussed in Chapter 3.3, a housing income limit represents the income required to pay the average (or median) market rent for an appropriately sized unit in a given community, and still be able to afford a modest basket of non-shelter goods. Housing Income Limits in Canada are produced annually the Canadian Mortgage and Housing Corporation based on their Rental Market Survey. However, for my study I am unable to use the HILs produced by the CMHC because the Survey of Household Spending does not have the level of geographic detail required, such as the CMA or census area. The SHS only reports which province a household is from, as well as the size of the region they live in by population: 100,000+ people, under 100,000 and rural.

As in Finkel et al (2006), I use the medians of the SHS's monthly rent field (MONRENT) to estimate the median rent by unit size in each region. Then, assuming that no household should pay more than 30% of their gross annual income for shelter, I calculate the gross annual income required to rent a given unit in each region (Finkel et al, 2006, p. 116 - 117). Table A.5 and Table A.6 report the median monthly rents and the annual housing income limit for units by size and region that I have estimated, respectively.

Thus households are eligible for policy alternatives that use HILs if their gross household income (HHINCTOT) is less than the local income limit for the dwelling size that they are eligible for, as defined by National Occupancy Standards (see Table A.1).

Table A.5 Median Monthly Rent for Units by Size and Region

Population Centre Size	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	4+ Bedroom
100,000+	$625	$783	$935	$1,133	$1,658
Below 100,000	$402	$750	$852	$880	$1,282
<1,000	$398	$735	$891	$841	$869

Source: Survey of Household Spending, 2009

Table A.6 Annual Housing Income Limits for Unit by Size and Region

Population Centre Size	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	4+ Bedroom
100,000+	$25,000	$31,320	$37,400	$45,320	$66,320
Below 100,000	$16,080	$30,000	$34,080	$35,200	$51,280
<1,000	$15,920	$29,400	$35,640	$33,640	$34,760

Source: Survey of Household Spending, 2009

Appendix B

Engel Curves

Chapter 3 of this study presents data on the actual expenditure patterns of Canadian households from 2009 using Engel curves. Engel curves are an economic tool used to demonstrate how household spending on budgetary items changes with household income. Engel curves can be compared over time in order to demonstrate changes in the relative affordability of necessary items, such as food, clothing, shelter, and transportation.

B.1 Constructing the Engel Curves

The Engel curves presented in my analysis are constructed using data from Statistics Canada's Survey of Family Expenditures (FAMEX) and the Survey of Household Spending (SHS)[3]. The Engel curves show the average shelter cost-to-income ratios (STIRs) of Canadian households based on income decile. Also shown are actual household expenditures on transportation and food.

Certain households have been removed from the construction of these Engel curves. As in Nepal, Tanton and Harding (2010), households with gross incomes equal to or less than zero have been removed. They report that the expenditure of such households is "often similar to that of households earning much more, and therefore incomes are considered an unreliable guide to a household's standard of living" (Nepal et al, 2010, p. 215). Similarly, households flagged by the SHS's AFFORDAB indicator

[3] Statistics Canada replaced the Survey of Family Expenditures and the Household Facilities and Equipment Survey in 1997 with the Survey of Housing Spending (SHS).

have been removed. These households have incomes that are unrelated to their consumption patterns, and therefore, standard of living. As such, they have been removed.

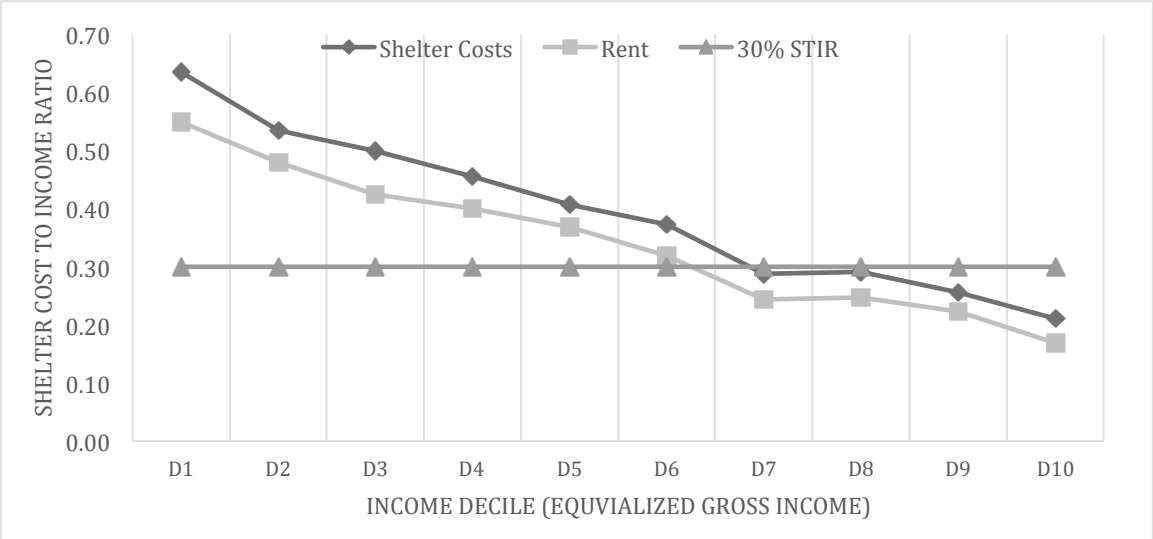
Gross household income is used to construct the income deciles and the shelter-cost-to-income ratios. Gross income is the income from all sources before taxes, including work earnings, investment, government transfer payments and other sources. For low-income households, government transfer payments are an important source of income - especially for families, who receive relatively generous payments from the Canada Child Tax Benefit (CCTB) and National Child Benefit Supplement (NCBS). Therefore, I calculate the STIRs using gross income (unless otherwise specified).

In order to compare the STIRs of households across income deciles, household income is first "equivalized." "Researchers use equivalized income measures to take [into] account the number of adults and children that each household's income has to support, so as to put households of differing composition on a more equal footing when assessing who is well-off and who is not" (Nepal, Tanton, and Harding, 2010, p. 215-216). Several different methods have been employed for equivalizing household income. I use the method most commonly used by current OECD reports – the square root method. This method involves dividing total household income by the square root of the household size. This expresses household income relative to that of a single person household (i.e. in per capita terms).

After household income is equivalized, households are divided into income deciles – i.e. income brackets with 10% of households in each bracket. This is achieved by ranking equivalized household income from lowest to highest, and then divvying up household cases into ten equally weighted groups.

STIRs are then calculated by dividing annual rent expenditure by equivalized household income. STIRs that have a value higher than one are reassigned a value equal to one. The average of each STIR is taken for each income decile.

Figure B.1 Per Capita Shelter Cost to Income Ratios for BC Renter Households (Gross Household Income)

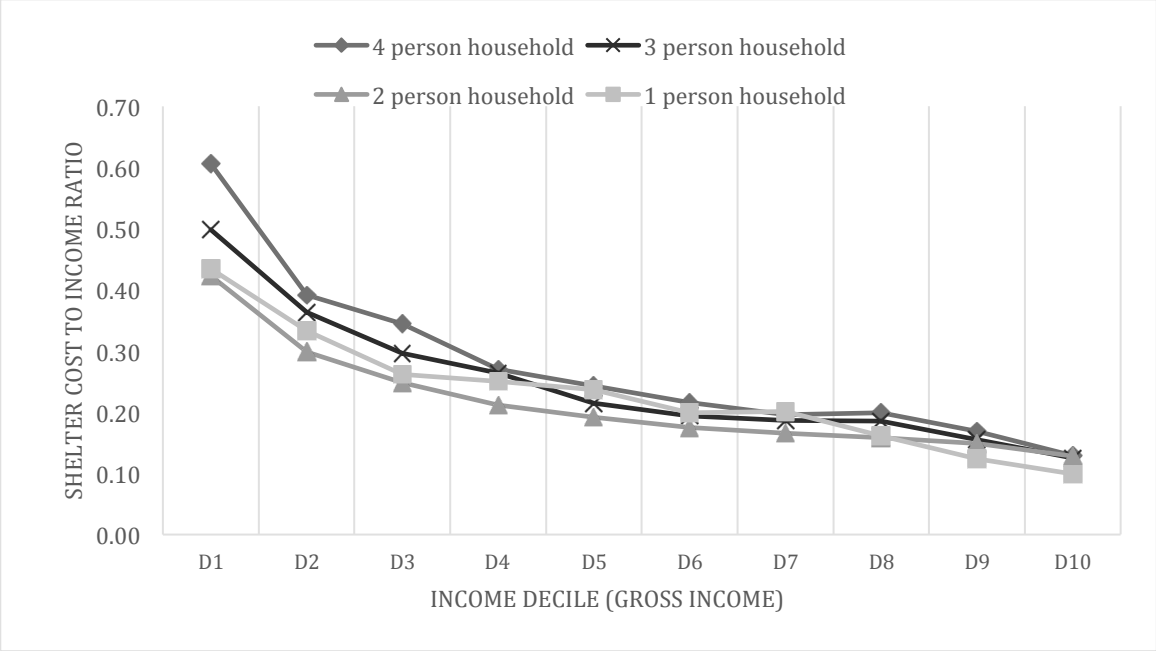


Source: Survey of Household Spending, 2009.
Note: Figure is for BC Renter households only. Gross Income is equivalized using the square root method to make income deciles.

Table B.1 Table B1: Income Deciles for Figure B1

Income Decile	Income Bracket (Gross Equivalized)
D1	<$12,000
D2	$12,000 - $15,000
D3	$15,000 - $18,500
D4	$18,500 - $22,517
D5	$22,517 - $27,135
D6	$27,135 - $36,000
D7	$36,000 - $42,426
D8	$42,426 - $50,807
D9	$50,807 - $65,000
D10	$65,000+

Figure B.2 Shelter Cost to Income Ratios for Canadian Households by Size (Gross Household Income)

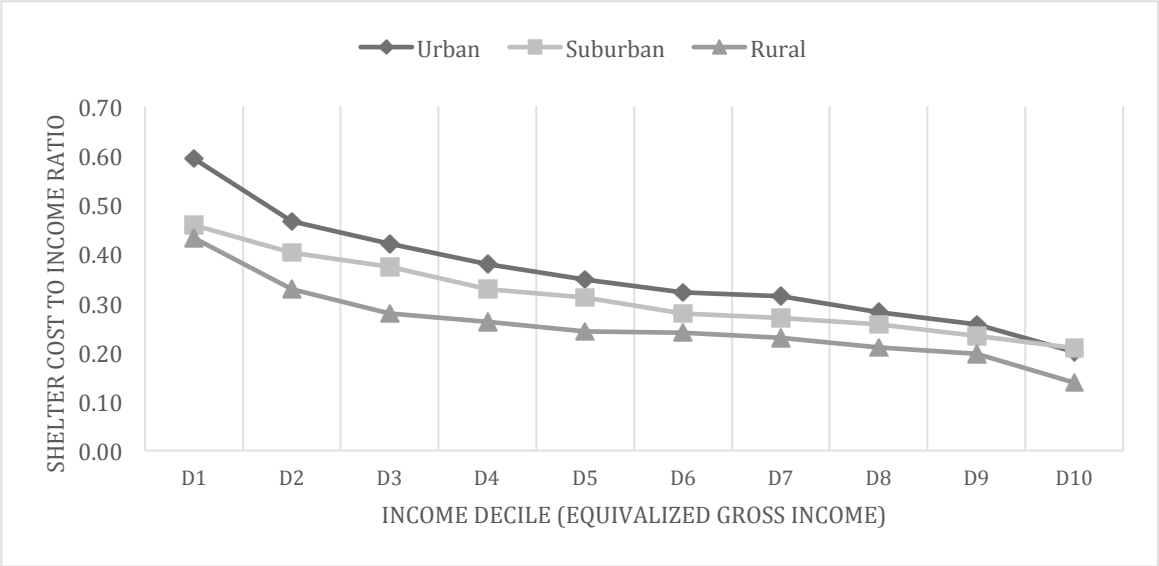


Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have not been equivalized. Gross Incomes are used for the income deciles

Table B.2 Income Deciles for Figure B2

Income Decile	Income Bracket (Gross)
D1	<$18,000
D2	$18,000 - $28,000
D3	$28,000 - $37,000
D4	$37,000 - $48,000
D5	$48,000 - $59,000
D6	$59,000 - $71,000
D7	$71,000 - $88,000
D8	$88,000 - $110,000
D9	$110,000 - $150,000
D10	$150,000+

Figure B.3 Per Capita Shelter Cost to Income Ratios for Canadian Households by Geography

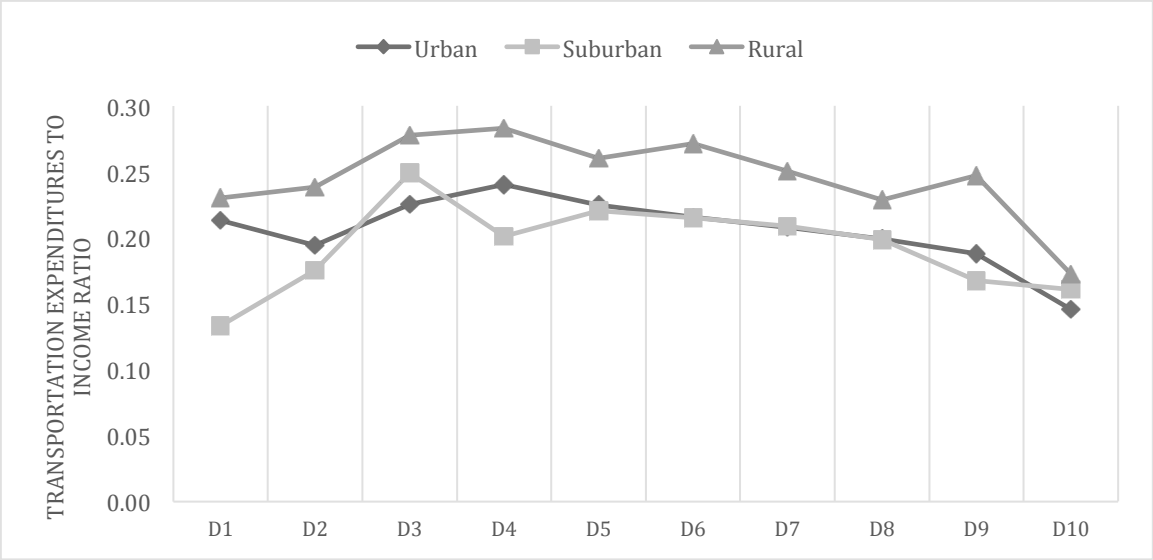


Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income.

Table B.3 Income Deciles for Figure B3 and B4

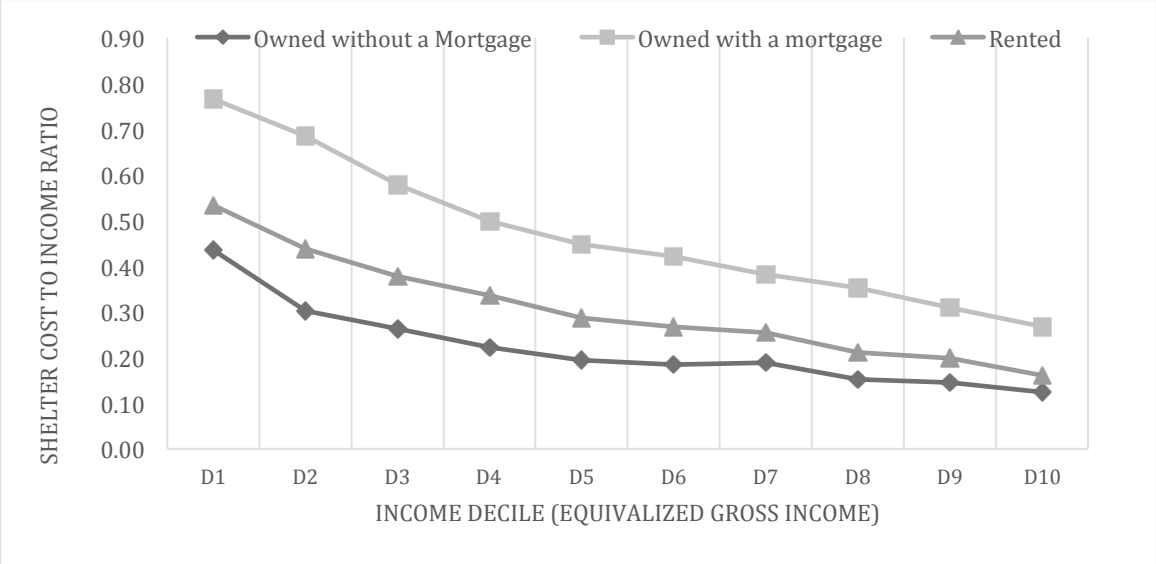
Income Decile	Income Bracket (Gross Equivalized)
D1	<$15,556
D2	$15,556 - $21,000
D3	$21,000 - $27,135
D4	$27,135 - $33,500
D5	$33,500 - $40,000
D6	$40,000 - $47,343
D7	$47,343 - $55,000
D8	$55,000 - $68,000
D9	$68,000 - $86,603
D10	$86,603+

Figure B.4 Per Capita Transportation Cost to Income Ratios for Canadian Households by Geography



Source: Survey of Household Spending, 2009.
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income.

Figure B.5 Per Capita Shelter Cost to Income Ratios for Canadian Households by Tenure Type



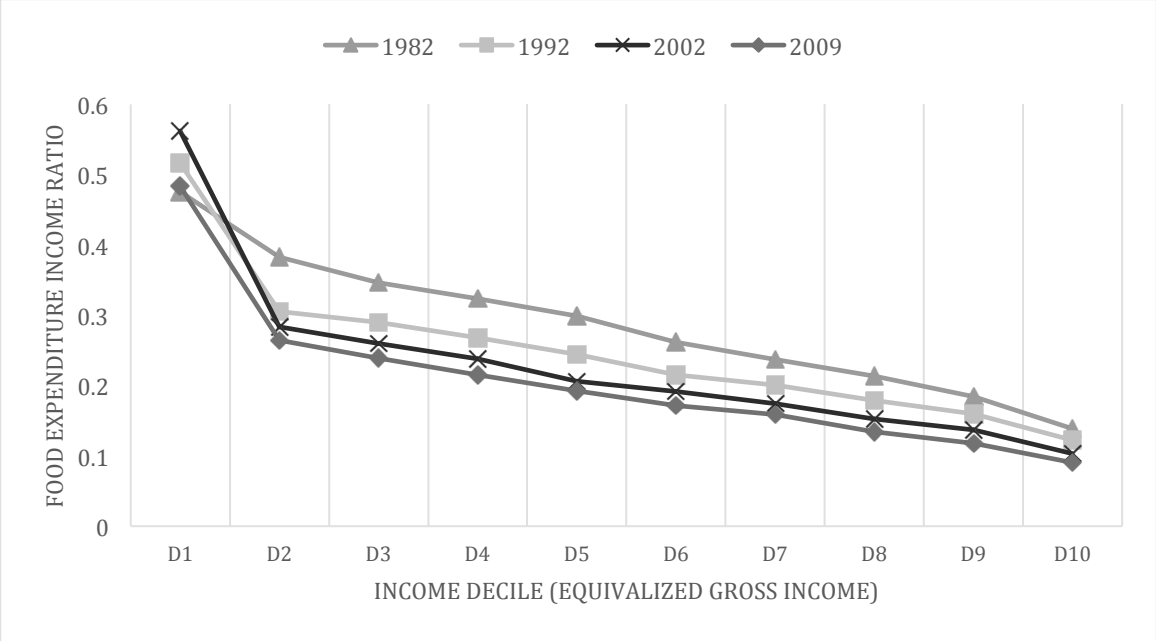
Source: Survey of Household Spending, 2009.

Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income. Shelter Costs for Owners without mortgages include: property taxes, repairs and maintenance, homeowners insurance premiums condominium charges if applicable, water, fuel, electricity and travel accommodation. Shelter Costs for owners with mortgages include all previously mentioned, plus mortgage payments. Shelter costs for renters include rent, water, fuel, electricity and travel accommodation.

Table B.5 Income Deciles for Figure B5

Income Decile	Income Bracket (Gross Equivalized)
D1	<$15,556
D2	$15,556 - $21,000
D3	$21,000 - $27,135
D4	$27,135 - $33,500
D5	$33,500 - $40,000
D6	$40,000 - $47,343
D7	$47,343 - $55,000
D8	$55,000 - $68,000
D9	$68,000 - $86,603
D10	$86,603+

Figure B.6 Per Capita Food Expenditure to Income Ratios for Canadian Households from 1982 to 2009



Source: (Statistics Canada, 1982, 1992, 2002, 2014)
Note: Figure is for Canadian Households of all Tenure Types; Incomes have been equivalized using the square root method for Gross Household Income. Food Expenditures includes both food purchase from stores and restaurants.

Table B.6 Income Deciles for Figure B6

Income Decile	Income Bracket (Gross Equivalized)			
	1982	1992	2002	2009
D1	<$6,276	<$10,162	<$12,000	<$15,556
D2	$6,276 - $8,645	$10,162 - $13,459	$12,000 - $16,971	$15,556 - $21,000
D3	$8,645 - $10,985	$13,459 - $17,240	$16,971 - $21,500	$21,000 - $27,135
D4	$10,985 - $13,401	$17,240 - $20,872	$21,500 - $26,870	$27,135 - $33,500
D5	$13,401 - $15,744	$20,872 - $25,018	$26,870 - $32,000	$33,500 - $40,000
D6	$15,744 - $18,215	$25,018 - $29,107	$32,000 - $38,000	$40,000 - $47,343
D7	$18,215 - $21,263	$29,107 - $34,153	$38,000 - $44,907	$47,343 - $55,000
D8	$21,263 - $25,166	$34,153 - $40,616	$44,907 - $53,116	$55,000 - $68,000
D9	$25,166 - $31,872	$40,616 - $51,619	$53,116 - $67,175	$68,000 - $86,603
D10	$31,872+	$51,619+	$67,175+	$86,603+

Appendix C.

Criteria and Measures

Table C.1 Summary of Criteria and Measures

Criteria	Description	Measure	Rating
Family Welfare	**Number of Eligible Households:** How many households are eligible under the Eligibility Option?	>35,000 households	(3) High
		25,000 - 35,000 households	(2) Medium
		<25,000 households	(1) Low
	Benefit Adequacy: What proportion of the cost of a nutritious basket of food does the Policy Set give households on average?	>50% of basket	(3) High
		40% - 50% of basket	(2) Medium
		<40% of basket.	(1) Low
Horizontal Equity	**Household Size and Composition:** What percent of households with three or more dependant children are eligible under the eligibility option?	≥50% of households	(3) High
		30% ≤ households < 50%	(2) Medium
		<30% of households	(1) Low
	Household Location: What percent of suburban households are eligible?	≤30% of households	(3) High
		30% > households ≥ 50%	(2) Medium
		>50% of households	(1) Low
	Implicit Affordability Problems: What percent of households with suitability problems are eligible?	≥75% of households	(3) High
		50% ≤ households < 75%	(2) Medium
		<50% of households	(1) Low
Vertical Equity	**Mean Marginal Effective Tax Rates:** What is the mean effective marginal tax rate?	METR ≥ 70 %.	(3) High
		40% ≤ METR < 70%	(2) Medium
		METR < 40%	(1) Low

Criteria	Description	Measure	Rating
Admin. Accept.	**Program Design Complexity:** How complex is the program to design and maintain for the provincial housing authority?	Less complex than status quo	(3) High
		No more or no less complex that status quo	(2) Medium
		More complex than status quo	(1) Low
	Participation Rates: How relatively easy or difficult is it to communicate eligibility to the target population?	Improves participation rates	(3) High
		No effect on participation rates	(2) Medium
		Reduce participation rates	(1) Low
	Moral Hazard: At very low levels of household income, what percentage of increased housing consumption does the policy set subsidize?	Subsidization rate <90%	(3) High
		90% < Subsidization rate <100%	(2) Medium
		Subsidization rate >100%	(1) Low

Appendix D

Policy Analysis of Policy Sets

Table D.1 Policy Analysis for 30% STIR & Gap Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 27,000 households or 30% of working families in private rental market.
	Benefit Adequacy	2.0	Policy Set provides a benefit that is 42% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	2.0	Eligibility Option includes 38% of households with more than three dependant children.
	High-Cost Regions	1.0	Eligibility Option includes 27% of households from suburban regions.
	Implicit Affordability Problems	2.0	Eligibility Option includes 51% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	1.0	Policy Set has a mean METR of 31%
Admin. Accept.	Program Design Complexity	2.0	Policy Set requires only the design and maintenance of subsidization rates that vary with household income, and depend on household size and location.
	Participation Rates	2.0	Eligibility Option requires households to confirm that their previous year's gross income is less than $35,000, and to calculate their STIR based on this year's annual rent expenditure. Households can reasonably expect to determine whether or not they are eligible.
	Moral Hazard	3.0	Policy Set has a subsidization rate that does not exceed 90% at the lowest income levels.
Total Score		7.0	

Table D.2 Composition of Households Eligible under the 30% STIR by Number of Dependants

30% STIR	Small Households (1-2 dependants)	Large Households (3+ dependants)	All Household Sizes
Eligible	21,582	5,580	27,162
Not Eligible	53,287	9,174	62,461
Total	74,869	14,754	89,623

Source: Survey of Household Spending, 2009

Table D.3 Composition of Households Eligible under the 30% STIR by Household Region

30% STIR	Rural	Suburban	Urban	All Regions
Eligible	2,848	7,344	16,970	27,162
Not Eligible	4,214	5,055	53,192	62,461
Total	7,062	12,399	70,162	89,623

Source: Survey of Household Spending, 2009

Table D.4 Composition of Households Eligible under the 30% STIR by Dwelling Suitability

30% STIR	Suitable	Unsuitable	All Household Sizes
Eligible	19,745	7,417	27,162
Not Eligible	55,230	7,231	62,461
Total	74,869	14,754	89,623

Source: Survey of Household Spending, 2009

Table D.5 Policy Analysis for 30% STIR & Transfer Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 27,000 households.
	Benefit Adequacy	2.0	Policy Set provides a benefit that is 47% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	2.0	Eligibility Option includes 38% of households with more than three dependant children.
	High-Cost Regions	1.0	Eligibility Option includes 27% of households from suburban regions.
	Implicit Affordability Problems	2.0	Eligibility Option includes 51% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	3.0	Policy Set has a mean METR of 84%
Admin. Accept.	Program Design Complexity	1.0	Policy set is more complex to design and upkeep than status quo. Policy set requires the design and upkeep of subsidization rates based on household size, location and income, as well as an affordability standard based on shelter and non-shelter consumption for various household sizes and locations.
	Participation Rates	2.0	Eligibility Option requires households to confirm that their previous year's gross income is less than $35,000, and to calculate their STIR based on this year's annual rent expenditure. Households can reasonably expect to determine whether or not they are eligible.
	Moral Hazard	2.0	Policy Set has a subsidization rate that does not exceed 100% at the lowest income levels.
Total Score		8.3	

Table D.6 Policy Analysis for Adjusted STIR & Gap Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 34,000 households.
	Benefit Adequacy	1.0	Policy Set provides a benefit that is 37% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	2.0	Eligibility Option includes 37% of households with more than three dependant children.
	High-Cost Regions	2.0	Eligibility Option includes 20% of households from suburban regions.
	Implicit Affordability Problems	2.0	Eligibility Option includes 51% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	1.0	Policy Set has a mean METR of 37%
Admin. Accept.	Program Design Complexity	2.0	Policy Set is no more complex than the status quo. Policy Set requires the design and upkeep of subsidization rates based on adjusted gross income.
	Participation Rates	2.0	Eligibility Option is more complex than the status quo because it requires households to use income cut offs and STIRs that depend on household size. However, households can reasonably be able to predict whether they are eligible.
	Moral Hazard	3.0	Policy Set has a subsidization rate that does not exceed 90% at the lowest income levels.
Total Score		6.8	

Table D.7 Composition of Households Eligible under the Adjusted STIR by Number of Dependants

30% STIR	Small Households (1-2 dependants)	Large Households (3+ dependants)	Total
Eligible	30,695	5,529	36,224
Not Eligible	44,174	9,225	53,399
Total	74,869	14,754	89,623

Source: Survey of Household Spending, 2009

Table D.8 Composition of Households Eligible under the Adjusted STIR by Household Region

30% STIR	Rural	Suburban	Urban	All Regions
Eligible	2,848	7,344	26,032	36,224
Not Eligible	4,214	5,055	44,130	53,399
Total	7,062	12,399	70,162	89,623

Source: Survey of Household Spending, 2009

Table D.9 Composition of Households Eligible under the Adjusted STIR by Dwelling Suitability

30% STIR	Suitable	Unsuitable	All Household Sizes
Eligible	26,235	7,417	33,652
Not Eligible	48,740	7,231	55,971
Total	74,975	14,648	89,623

Source: Survey of Household Spending, 2009

Table D.10 Policy Analysis for Adjusted STIR & Transfer Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 34,000 households.
	Benefit Adequacy	2.0	Policy Set provides a benefit that is 39% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	3.0	Eligibility Option includes 62% of households with more than three dependant children.
	High-Cost Regions	2.0	Eligibility Option includes 20% of households from suburban regions.
	Implicit Affordability Problems	3.0	Eligibility Option includes 51% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	3.0	Policy Set has a mean METR of 76%
Admin. Accept.	Program Design Complexity	1.0	Policy Set is more complex than status quo. Policy set requires the design and upkeep of subsidization rates based on adjusted gross income, as well as an affordability standard based on shelter and non-shelter consumption for various household sizes and locations.
	Participation Rates	2.0	Eligibility Option is more complex than the status quo because it requires households to use income cut offs and STIRs that depend on household size. However, households can reasonably be able to predict whether or not they are eligible.
	Moral Hazard	2.0	Policy Set has a subsidization rate that does not exceed 100% at the lowest income levels.
Total Score		8.2	

Table D.11 Policy Analysis for Residual Income & Gap Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	1.0	Eligibility Option includes 22,000 households.
	Benefit Adequacy	3.0	Policy Set provides a benefit that is 54% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	1.0	Eligibility Option includes 24% of households with more than three dependant children.
	High-Cost Regions	3.0	Eligibility Option includes 9% of households from suburban regions.
	Implicit Affordability Problems	2.0	Eligibility Option includes 60% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	2.0	Policy Set has a mean METR of 47%
Admin. Accept.	Program Design Complexity	1.0	Policy set is more complex to design and upkeep than status quo. Policy set requires the design and upkeep of subsidization rates based on household size, location and income, as well as an affordability standard based on shelter and non-shelter consumption for various household sizes and locations.
	Participation Rates	1.0	Eligibility Option is more complex than the status quo because it requires households to determine their eligibility using their disposable household income from the previous year's tax return less their current annual rent expenditures, and compare them with affordability thresholds dependent on household size and location.
	Moral Hazard	1.0	Policy Set has a subsidization rate that exceeds 110% at the lowest income levels.
Total Score		7.0	

Table D.12 Composition of Households Eligible under the Residual Income Method by Number of Dependants

30% STIR	Small Households (1-2 dependants)	Large Households (3+ dependants)	Total
Eligible	18,732	3,477	22,209
Not Eligible	56,137	11,277	67,414
Total	74,869	14,754	89,623

Source: Survey of Household Spending, 2009

Table D.13 Composition of Households Eligible under the Residual Income Method by Household Region

30% STIR	Rural	Suburban	Urban	All Regions
Eligible	2,848	1,913	17,448	22,209
Not Eligible	4,214	10,486	52,714	67,414
Total	7,062	12,399	70,162	89,623

Source: Survey of Household Spending, 2009

Table D.14 Composition of Households Eligible under the Residual Income Method by Dwelling Suitability

30% STIR	Suitable	Unsuitable	All Household Sizes
Eligible	13,410	8,799	22,209
Not Eligible	61,565	5,849	67,414
Total	74,975	14,648	89,623

Source: Survey of Household Spending, 2009

Table D.15 Policy Analysis for Residual Income & Transfer Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	1.0	Eligibility Option includes 22,000 households.
	Benefit Adequacy	3.0	Policy Set provides a benefit that is 55% of the cost of a food basket on average.
Horizontal Equity	Number of Dependants	1.0	Eligibility Option includes 24% of households with more than three dependant children.
	High-Cost Regions	3.0	Eligibility Option includes 9% of households from suburban regions.
	Implicit Affordability Problems	2.0	Eligibility Option includes 60% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	3.0	Policy Set has a mean METR of 96%
Admin. Accept.	Program Design Complexity	1.5	Policy set is more complex to design and upkeep than status quo. Policy set requires the design and upkeep of subsidization rates based on household size, location and income, as well as an affordability standard based on shelter and non-shelter consumption for various household sizes and locations.
	Participation Rates	1.0	Eligibility Option is more complex than the status quo because it requires households to determine their eligibility using their disposable household income from the previous year's tax return less their current annual rent expenditures, and compare them with affordability thresholds dependent on household size and location.
	Moral Hazard	3.0	Subsidization rate at very low levels is income is 83%
Total Score		8.8	

Table D.16 Policy Analysis for Housing Income Limit & Gap Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 31,000 households.
	Benefit Adequacy	2.0	Policy Set provides a benefit that is 43% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	3.0	Eligibility Option includes 47% of households with more than three dependant children.
	High-Cost Regions	1.0	Eligibility Option includes 21% of households from suburban regions.
	Implicit Affordability Problems	3.0	Eligibility Option includes 76% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	1.0	Policy Set has a mean METR of 33%
Admin. Accept.	Program Design Complexity	1.5	Policy set is somewhat more complex to design and upkeep than status quo. Policy set requires the design and upkeep of subsidization rates based on household size, location and income, as well as local Housing Income Limits, though these could potentially be obtained through CMHC.
	Participation Rates	3.0	Eligibility Option is no more complex than the status quo because it requires households to use income cut offs that depend on household size and location.
	Moral Hazard	1.0	Subsidization rate at very low levels is income is 106%
Total Score		7.5	

Table D.17 Composition of Households Eligible under the Housing Income Limit by Number of Dependants

30% STIR	Small Households (1-2 dependants)	Large Households (3+ dependants)	Total
Eligible	23,502	6,992	30,494
Not Eligible	51,367	7,762	59,129
Total	74,869	14,754	89,623

Source: Survey of Household Spending, 2009

Table D.18 Composition of Households Eligible under the Housing Income Limit by Household Region

30% STIR	Rural	Suburban	Urban	All Regions
Eligible	2,848	6,373	21,273	30,494
Not Eligible	4,214	6,026	48,889	59,129
Total	7,062	12,399	70,162	89,623

Source: Survey of Household Spending, 2009

Table D.19 Composition of Households Eligible under the Housing Income Limit by Dwelling Suitability

30% STIR	Suitable	Unsuitable	All Household Sizes
Eligible	19,323	11,171	30,494
Not Eligible	55,652	3,477	59,129
Total	74,975	14,648	89,623

Source: Survey of Household Spending, 2009

Table D.20 Policy Analysis for Housing Income Limit & Transfer Method

Criteria	Description	Rating	Explanation
Family Welfare	Families Assisted	2.0	Eligibility Option includes 31,000 households.
	Benefit Adequacy	2.0	Policy Set provides a benefit that is 44% of the cost of a food basket on average
Horizontal Equity	Number of Dependants	3.0	Eligibility Option includes 47% of households with more than three dependant children.
	High-Cost Regions	2.0	Eligibility Option includes 21% of households from suburban regions.
	Implicit Affordability Problems	3.0	Eligibility Option includes 76% of households with suitability problems.
Vertical Equity	Mean Marginal Effective Tax Rates	2.0	Policy Set has a mean METR of 69%
Admin. Accept.	Program Design Complexity	1.0	Policy set is more complex to design and upkeep than status quo. Policy set requires the design and upkeep of subsidization rates based on household size, location and income, as well as an affordability standard based on shelter and non-shelter consumption for various household sizes and locations. Furthermore, it also requires the design and upkeep of local Housing Income Limits, though these could potentially be obtained through CMHC.
	Participation Rates	3.0	Eligibility Option is no more complex than the status quo because it requires households to use income cut offs that depend on household size and location.
	Moral Hazard	3.0	Subsidization rate at very low levels is income is 80%
Total Score		9.0	