Evaluation of the Government of Alberta's Direct-to-Tenant Rent Supplement and Identification of Entitlement-based Housing Allowance Options

by

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Abstract

The Direct-to-Tenant Rent Supplement (DTRS) is a Government of Alberta housing allowance that is targeted to a broad section of low-income renters in the private market. It subsidizes the full range of the affordability gap, or the difference between actual rent and 30 percent of an eligible household's gross income. However, the non-entitlement nature only replicates the horizontal inequities of social housing. Furthermore, the program also has vertical inequity issues due to the benefit formula's indifference to household size. This study searches for an alternative method to define eligibility and allocate benefits within the context of an entitlement-based housing allowances. It is recommended that the provincial government restrict eligibility to low income working-age households with employment earnings. In addition, the program should only subsidize a portion of the affordability gap with benefit generosity adjusted for family size. This policy option demonstrated significant improvements in equity while constraining program costs.

Keywords: Housing allowances; rent supplements; Direct-to-Tenant Rent Supplement; housing unaffordability; housing policy; Shelter-Cost-to-Income Ratios (STIR)

I dedicate this project to my beloved parents, Victor Yong and Shaw Ting Lau, as well as my wonderful siblings, Elizabeth and Nicholas.

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List of Acronyms

AF	Allocation Logement
CHMC	Canada Housing and Mortgage Corporation
DTRS	Direct-to-Tenant Rent Supplement
EHAP	Experimental Housing Allowance Program
HCV	Housing Choice Voucher
HIL	Housing Income Limit
METR	Marginal Effective Tax Rates
NOS	National Occupancy Standards
RAP	Rental Assistance Program (BC)
RGI	Rent-Geared-to-Income
SAFER	Shelter Aid for Elderly Renters (BC)
SAFER	Shelter Allowance for Family Renters (MB)
STIR	Shelter Cost to Income Ratio

Executive Summary

The policy problem that this study seeks to mitigate is housing unaffordability in Alberta, which the CHMC defines as spending more than 30 percent of gross income on shelter. This issue is more pronounce among low-income renters, who are the primary targets of the Government of Alberta's housing programs. In all jurisdictions, government assistance can be in the form of supply-side or demand-side policies. The former, consisting of social housing or capital programs, aim to sidestep the private market through direct or indirect government provision. However, they are inherently unfair because demand for units charging subsidized rent of 30 percent of gross income far exceeds supply, thus producing long waitlists. Demand-side programs aspire instead to augment the ability of low-income households to afford private rental units, and are well-placed in a policy context like Alberta's that is defined by housing unaffordability as opposed to poor quality of the existing housing stock. Furthermore, there is academic consensus that demand-side programs like housing allowances or vouchers, are more cost-effective relative to supply-side alternatives. They also give households more autonomy concerning the type and quantity of housing to consumed. More importantly, consumer choice enables the healthier socio-economic dynamics resulting from the spatial dispersion of low-income households to mixed-income neighborhoods. Given the fiscal constraints facing the Albertan government, expanding or improving on existing demand-side programs would be the preferable route to help a wider sub-section of low-income households.

One such program, the Direct-to-Tenant Rent Supplement (DTRS) illustrates the potential of demand-side programs, but is nevertheless constrained by design deficiencies. The program subsidizes the full range of the "affordability gap", defined as the difference between actual market rent and 30 percent of gross adjusted household income, and is targeted to essentially any low-income renter household experiencing affordability problems. It is the contention of this study that the DTRS remains the most promising vehicle for effective housing assistance in Alberta. To that end, this study adopted an evaluation framework with the following sets of criteria:

- The program must induce the worst-housed families at each income level to occupy better housing than they would choose if they were given equally costly cash grants with no strings attached;

- families that are the same with respect to characteristics of interest to taxpayers should be offered the same assistance (*horizontal equity*);
- the greatest assistance should go to the neediest families (*vertical equity*); and
- the housing provided to participants should have the lowest possible total cost to tenants and governments given its overall desirability.

Given that the housing problem in Alberta stems primarily from unaffordability, the study found that most DTRS recipients do not use the subsidy to occupy better and hence more expensive housing, but rather to offset high shelter cost to income ratios. This is not dissimilar to the extensive empirical evidence of low-income elasticities of demand for housing. To some extent, this was the intended outcome of the DTRS as most recipients were already housed in adequate and suitable rental units at the point of receipt of the benefit.

Where problems of the DTRS are severe, it is with respect to horizontal and vertical inequity (evaluation criteria 2 and 3). Specifically, the program was found to have a very expansive eligibility criterion compared to other housing allowance programs in Canada. Given the limited annual subsidy budget of $31 million, only a very small subsection of total eligible households can receive benefits. Non-entitlement also entails needs-based prioritization and wait listing of applicants, which skews the distribution of recipients to clients with costlier needs, namely households with a high number of dependents and/or high shelter cost to income ratio. This dynamic is further exacerbated by a benefit formula that subsidizes the full range of the affordability gap. As a result, the DTRS provides a relatively high average monthly subsidy vis-à-vis comparable programs in other provinces. Benefit spells are also likely to be very long, which prevents the program from responding to applicants with short-term needs. Vertical inequity also resulted from the benefit formula's indifference towards larger households, which have higher expenditure commitments relative to single person households.

Evaluation criteria deal primarily with the potential adverse behavioral outcomes from housing allowances in general, which the literature identify to be (1) undue consumption of housing by recipients, (2) rent inflation, and (3) work disincentives. While using a full affordability gap benefit formula could theoretically lessen the marginal cost of recipients to consume expensive housing up to the maximum subsidizable rent, the low

demand elasticity for housing precludes it. Households could already be consuming an undesirably high amount of housing to begin due to regulations. This in turn explains the study's argument that rent inflation from the DTRS is likely to be non-existent, or at worst small. Other factors include the fact that DTRS-subsidized units represent less than two percent of total private rental stock in Alberta, and evidence that most landlords are unaware of DTRS recipients because the benefit is delivered directly to the tenant. Work disincentives in the form of high METRs could be an issue, especially for recipients with dependents due to the interaction of the DTRS with means-tested family benefits. Nevertheless, the literature identified work disincentives for housing allowance recipients to be less onerous than social housing tenants.

The policy options identified in this study aim to transform the DTRS into an entitlement benefit defined with cost constraints in mind. Four eligibility criteria options define potential target populations: (1) low-income households experiencing affordability problems that are currently not paying subsidized rent and are not full-time post-secondary students (exceptions for those with dependents); (2) working-age, low-income households experiencing affordability problems; (3) working-age, low-income households whose income include sources from employment; and (4) working age, low income households with dependents. For each of these eligibility criteria, the DTRS benefit for qualifying households were calculated using three benefit formula options: (1) full (100 percent) affordability gap method (status quo); (2) a 75 percent, partial affordability gap, and (3) a partial variable affordability gap that is linear in household size. The participation rate among eligible households is assumed to be 60 percent, which is consistent with the literature. It was recommended that the Government of Alberta reform the existing DTRS program design by restricting eligibility to working age adults who are currently not paying subsidized rent, are not full-time post-secondary students (except those with dependents), and whose gross adjusted household income includes sources from employment. The benefit should also be calculated using the partial variable affordability gap approach. This policy recommendation was demonstrated to have significant improvements in horizontal and vertical equity, without an onerous decrease in benefit generosity relative to the old DTRS design, and is low-cost enough to not require new expenditures.

Chapter 1.

Introduction

The affordability of the rental housing market is a perennially issue in Alberta due to the preponderance of resource-driven economic fluctuations. Not too long ago, the private rental market in Calgary, Edmonton and Wood Buffalo were characterized by low vacancy rates, increasing average rents, and a decline in the number of purpose-built rental units due to the conversion of apartment buildings to condominiums. More recently, the negative 'oil shock' has resulted in a significant cooling of rental demand with record high vacancy levels due to job layoffs and reduced interprovincial migration. Whatever the economic situation, tens of thousands of households end up spending a disproportionate amount of their income on shelter due to rising rental costs or drastic reduction in income due to limited employment and general business prospects.

Unfortunately, provincial housing assistances has been wholly inadequate. Traditional social housing – housing that charges Rent-Geared-to-Income of 30 percent is a very limited resource in the province. Provincial government-funded units only represent 5.5 percent of the total housing stock and 20 percent of rental units in the province in 2013. The waiting lists for such units are many months long, and any planned increases in social housing stock or provincial government capital for private or non-sector constructed subsidized rental units will entail years of construction or refurbishment before the subsidized households can move in. In fact, many aging social housing projects were funded under federal-provincial cost sharing agreements that will be expiring, thus leaving the provincial government with the tab for operating costs as well as capital maintenance or renewal. As such, the provincial government housing system can be summed up as producing inequitable outcomes (providing large subsidies to some households but offering none to others who are equally poor) at a huge fiscal cost.

Getting better housing outcomes with less or marginal increases in public spending is always desirable, and Alberta's current fiscal situation adds urgency to this task. The Direct-to-Tenant Rent Supplement (DTRS), a housing allowance that subsidizes the full difference between a recipient's actual market rent and 30 percent of gross household income, is a fertile ground for reform. Assisting only 6,667 households in 2013, the DTRS is however constrained in terms of its effectiveness and scope due to a limited budget ($31 million in 2013), expansive eligibility formula, and problematic benefit formula. Nevertheless, the DTRS remains the best vehicle to expand housing assistance in this time of fiscal constraint. The solution therefore is to find a more equitable yet affordable way to design the DTRS to mitigate the policy problem of housing affordability in Alberta. This will entail evaluating the DTRS to identify its deficiencies and room for improvement.

Specifically, this study will attempt to answer the following research questions:

- What are the best practices in designing housing allowances with respect to eligibility and the allocation of benefits?
- To what degree has the Government of Alberta's Direct-to-Tenant Rent Supplement (DTRS) fulfilled those design best practices? What are the weaknesses of the program with respect to horizontal and vertical equity? Are there significant work disincentives and moral hazard issues associated with receipt of the benefit?
- What are the alternate eligibility and benefit formulas to minimize horizontal and vertical inequality while minimizing subsidy costs? How can we estimate the potential number of beneficiaries and cost to government under these alternative program design options?

Chapter 2.

Policy Context and Background

2.1. The Non-Market Housing System in Alberta

The Government of Alberta's Department of Seniors and Housing funds a number of supply-side and demand-side housing programs, mostly through Housing Management Bodies (HMBs, the equivalent of local housing authorities). Supply-side programs focus on either construction or rehabilitation of housing units with a multitude of subsidy elements that cover both capital and operating costs (Mayo, 1985). These can range from direct government provision of social housing, to tax credits, forgivable loans, waivers of applicable property taxes and development levies, or government-owned land provided free to non-profit or for-profit housing developers. In contrast, demand-side assistance normally takes the form of housing allowances or rent supplements that are characterized by either direct cash payments or vouchers to tenants or landlords.

All provincially funded housing programs in Alberta are authorized and regulated under the *Alberta Housing Act.* The stated purpose of the legislation is to "enable the efficient provision of a basic level of housing accommodation for persons who because of financial, social, or other circumstances require assistance to obtain or maintain housing accommodation". Provincially-funded housing programs in Alberta can be further divided into three categories, with a full list provided in Table 1:

- *Social housing*: Publicly owned[1] and operated housing, including supportive housing for seniors; applicants pay Rent-Geared-to-Income (RGI) set at 30 percent of income (36,288 units)
- *Capital programs*: Capital funding to housing management bodies, municipal governments, not-for-profits and for-profit companies for the development of affordable housing units; rental rates must be at least 10 percent below average local market rates for a period of at least 20 years (27,764 units)

[1] Publicly owned is defined as housing units owned by the Alberta Social Housing Corporation (a Government of Alberta corporate entity), Housing Management Bodies, and municipal governments.

- *Demand-side programs:* Programs that supplement the difference between market rent and 30 percent of a tenant's household income; recipients can either choose own dwelling (housing allowances) or choose from a list of private rental units (rent supplements) (12,305 units)

Table 2.1. Government of Alberta Housing Programs

Program type	Program name	Number of units (as of March 2013)	Number of Albertans served (as of March 2013)	2013 budget ($000's)*	Federal-provincial cost-sharing
Supply-side, social housing	Seniors Self-Contained	14,278	15,135	14,838	Yes
Supply-side, social housing	Community housing	10,514	33,645	56,716	Yes
Supply-side, social housing	Special Needs Housing	1,357	3,444	5,802	Yes
Demand-side, rent supplement	Private Landlord Rent Supplement	6,038	10,688	33,260	Yes
Demand-side, housing allowances	Direct-to-Tenant Rent Supplement	6,267	11,092	31,240	No
Supply side, capital program	Affordable Housing	17,025**	N/A	1,400,000***	No
Supply side, supportive housing capital program	Affordable Supportive Living Initiative	10,739	N/A		No
Supply side, seniors supportive housing	Lodges, cottages and unique homes	10,139	10,648	45,742****	No
TOTAL		76,357			

* Provincial costs only; the provincial government funds all operating costs, amortization and insurance costs shared with the Federal Government.
** Note that 4,720 units were not completed as of March 2013.
*** Total capital costs from 2002/03 to 2011/12.
**** Also includes the Seniors Lodge Assistance program that provides cash assistance to low and middle-income residents to ensure they have $315 per month in disposable income.
Source. Government of Alberta (2015).

The vast majority (84 percent) of units funded by the Government of Alberta arise from supply-side programs. There are only two demand-side programs that the Government of Alberta provides: the Direct-to-Tenant Rent Supplement (DTRS), which is fully funded by the provincial government and is the subject of this study; and the Private Landlord Rent Supplement, which is cost-shared between the federal and provincial

governments. The latter program is analogous to the Federal Government's *Section XX Rent Supplement* in that is the responsibility of the government agency to negotiate with the landlords to secure market rent units for a fixed period, commonly five years. The subsidy is provided to the landlord in exchange for program participants paying discounted rents equal to 30 percent of their income.

2.2. Introduction to the Direct-to-Tenant Rent Supplement

The Direct-to-Tenant Rent Supplement (herein abbreviated as DTRS) is an example of a demand-side, housing allowance that augments the financial capacity of low-income Albertans to afford private rental units. In 2007, the Government of Alberta introduced the DTRS as an amendment to the *Private Landlord Rent Supplement Regulation*. Funding for the program is provided in the form of annual conditional grants to Housing Management Bodies, which are responsible for accessing applications and dispersing the benefit. At its core, the subsidy covers 100 percent of the difference between actual market rent and 30 percent of an eligible household's pre-tax total annual income. Recipients pay rent equal to 30 percent of their household's adjusted gross income and their DTRS benefit is inverse to income. The benefit is *portable* in the sense that recipients can take the subsidy along with them whenever they move in Alberta, thus giving users substantial flexibility in their choice of housing.

2.2.1. Eligibility Criteria and Targeting

Alberta Seniors has set four main criteria to determine eligibility for the Direct-to-Tenant Rent Supplement program:

- *Residency requirements*: Applicants must be Canadian citizens, independent landed immigrants or government-sponsored landed immigrants
- *Income test:* Applicants must have incomes at or below the Core Need Income Thresholds (CNIT) for their specific community. The CNIT is a form of Housing Income Limit (HIT), equal to the gross household income required in order that the cost to rent an appropriately sized unit in a specific geographic area is 30 percent or less of gross household income (Croll, 2015). As such, CNITs are calculated annually and vary according to municipality and type of unit. To illustrate, the 2015 CNIT

for a 3-bedroom in Calgary is $59,000. For the purpose of calculating household's annual gross income, the CNIT excludes government transfers including the Canada Child Benefit, the federal GST credit, the Alberta Family Employment Tax Credit, as well as withdrawals from RRSPs, RRIFs and other retirement accounts. It however includes any provincial welfare assistance (Alberta Works) and disability assistance (AISH).

- *Asset test:* Assets no more than $8,000 (excluding private vehicles worth not more than $4,000), assets in pension funds, RRSPs and other retirement savings, and assets necessary for a person's occupation (e.g. tractors, farming equipment).
- *Activity test:* The applicants must be currently spending 30 percent or more of their household's adjusted income (refer to *income test*) on rent (not including utilities and other charges).

The DTRS program budget is appropriated annually in the provincial budget at approximately $33 million. To ration the subsidy, DTRS applicants are prioritized and waitlisted according to a needs-based system that is set out in the *Social Housing Accommodation Regulation,* in which they receive points from fulfilling any one of the categories in Table 2 below. Furthermore, two points are deducted for every $1,000 of assets and twenty points if the household consists solely of one or more full-time students in a recognized educational institution over the age of 17 and with no dependents. Applicants with the most points will be prioritized in the allocation of the subsidy. In the case of two or more applicants who have an equal amount of points, the household who applied the first will receive the benefit.

Table 2.2. Direct-to-Tenant Rent Supplement Point Scoring Standard

Point category	Points allocated
Number of dependents*	3 points for each dependent, up to a maximum of 24 points
Percentage of existing rent paid to income	3 points for every 5 percent in excess of 30 percent of household's income, up to a maximum of 21
Eviction situation**	15 points if the applicant has been served a notice to vacate or terminate an existing tenancy agreement
Emergency situation	15 points if the applicants needs accommodation as a result of an emergency, for example fleeing domestic violence
Accessibility issues	Maximum of 12 points if the current accommodation is not accessible/adaptable because of the physical circumstances of the applicant (i.e. mobility issues because of old age or disability)
Overcrowding	3 points for each additional room needed to satisfy CHMC's suitability standard, up to a maximum of 12 points

Health	Maximum of 10 points if the current accommodation is deemed detrimental to the health of the applicants due to severe deficiencies

* A dependent includes a member of the household who is not self-supporting, including a spouse or adult interdependent partner who is not employed.
** No points awarded if the household committed a breach of the tenancy agreement, repudiated the tenancy agreement, abandoned the premises, or if the tenant has been otherwise terminated as a result of the household's contravention of the *Residential Tenancies Act* or any other law.
Source: Social Housing Accommodation Regulation, Alberta Regulation 244/1994; Government of Alberta (2015)

2.2.2. Benefit Formula

The most common method to calculate housing allowance benefit for recipients is the "affordability gap" formula illustrated below:

$$S = \alpha(R - \beta Y)$$

Where S is the benefit, R is shelter cost, Y is the household's total annual income, and α and β are program parameters with values from 0 to 1. These parameters are respectively the affordability gap (α) and the tenant's contribution rate (β). In almost all Canadian housing allowances, β has a value of 0.3 since tenants are required to contribute at least 30 percent of their income to shelter. "Full affordability gap" housing allowances has a value of 1 and "partial affordability gap" housing allowances has a value below one.

The DTRS is an example of a "full affordability gap" housing allowance. Specifically, the full benefit formula of the DTRS can be presented as

$$S = R - 0.3Y \text{ if } S \leq S_{max},\ R < R_{max} \text{ and housing meets minimum standards}$$

$$S = R_{max} - 0.3Y \text{ if } S \leq S_{max},\ R \geq R_{max} \text{ and housing meets minimum standards}$$

The notation for the above equations follows that of the first equation with the adjustment that R is actual market rent, R_{max} is the maximum rent that varies according to household size and community, and S_{max} is the maximum subsidy, which also differs according to community.

2.3. The Housing Problem in Alberta

The Canada Mortgage and Housing Corporation (CHMC) defines a household to be in Core Housing Need if a dwelling fails to meet any of the three standards of adequacy, suitability and affordability, and the household would have to spend 30 percent or more of its income to pay the median market rent of alternative local market housing. Adequacy refers to the physical condition of the dwelling. Suitability pertains to the size of the dwelling relative to the size and characteristics of the households. Finally, affordability is based on the household's shelter cost to income ratio (STIR), which in the housing literature is based on the rule of thumb that households should not spend more than 30 percent of their gross income on shelter costs.

The nature of the housing problem in Alberta results primarily from the lack of affordability rather than from poor quality housing. National Household Survey (NHS) data from Statistics Canada shows that, as of 2011, almost 11 percent of all Albertans, or 137,485 households, were in core housing need (CHMC, 2011). Only 0.4 percent of all Albertan households were in core housing need because of suitability problems, 0.6 percent had adequacy problems, and 8.4 percent of all households did not fulfill the affordability standard. This was an increase from the comparable statistic of 7.8 percent in 2001. Overall, Alberta was the only Canadian jurisdiction, with the exception of Saskatchewan and Nunavut, to experience an increase in the incidence of core housing need from 2001 to 2011 (CHMC, 2011).

The incidence of core housing need also varies by household characteristics (see Table 1). 23.2 percent of Albertan renters were in core housing need in 2011. On the basis of average shelter cost-to-income ratio (STIR), 19 percent of Albertan renters spent more than 50 percent of income on shelter costs and another 20 percent spent between 30 percent and 50 percent. Among household type, female lone parent households and single, unattached adults had the highest incidences of core housing need in 2011, at 29.2 percent and 31.4 percent respectively. Senior-led households also had larger incidences of core housing need than the general population at 15.7 percent.

Table 2.3. Core Housing Need by Household Characteristics in Alberta and Canada (2011)

Household type	Percentage in core housing need (Alberta)	Percentage in core housing need (Canada)
All households	10.7%	12.5%
Annual household income		
<$10,000	76.1%	80.3%
$10,000-$19,999	76.3%	69.5%
$20,000-$29,000	61.6%	48.2%
$30000 to $39,999	37.1%	26.5%
$40,000-$49,999	23.2%	14.7%
$50,000 and over	1.2%	0.9%
Tenure type		
Owner	5.7%	5.8%
Renter	23.2%	25.5%
Household type		
Individuals living alone	31.4%	25.2%
Couples with children	6.5%	7.2%
Couples without children	4.5%	5.3%
Female lone parent	29.2%	31.2%
Male lone parent	13.6%	17.4%
Senior-led	15.7%	13.7%
Aboriginal status		
Aboriginal person	19.0%	21.0%
Non aboriginal	8.7%	10.3%
Immigrant status		
Non-immigrant	8.6%	9.3%
Non-permanent resident	14.0%	22.2%
Immigrant	11.6%	15.4%
Age of head of household		
15-29 years	8.8%	10.9%
30-44 years	8.4%	10.3%
46-64 years	7.0%	8.9%
65 years and over	11.8%	10.4%

* Includes only non-farm , non-band and non-reserve households with income greater than zero and Shelter Cost to Income Ratio less than 100%.
** An Aboriginal person is anybody defined as an Aboriginal person (Question 18 on the 2011 National Household Survey form 2B, a member of an Indian Band/First Nation (question 20), or Treaty Indian or Registered Indian (question 21).
Source: CHMC data based on revised National Household Survey housing indicators and data.

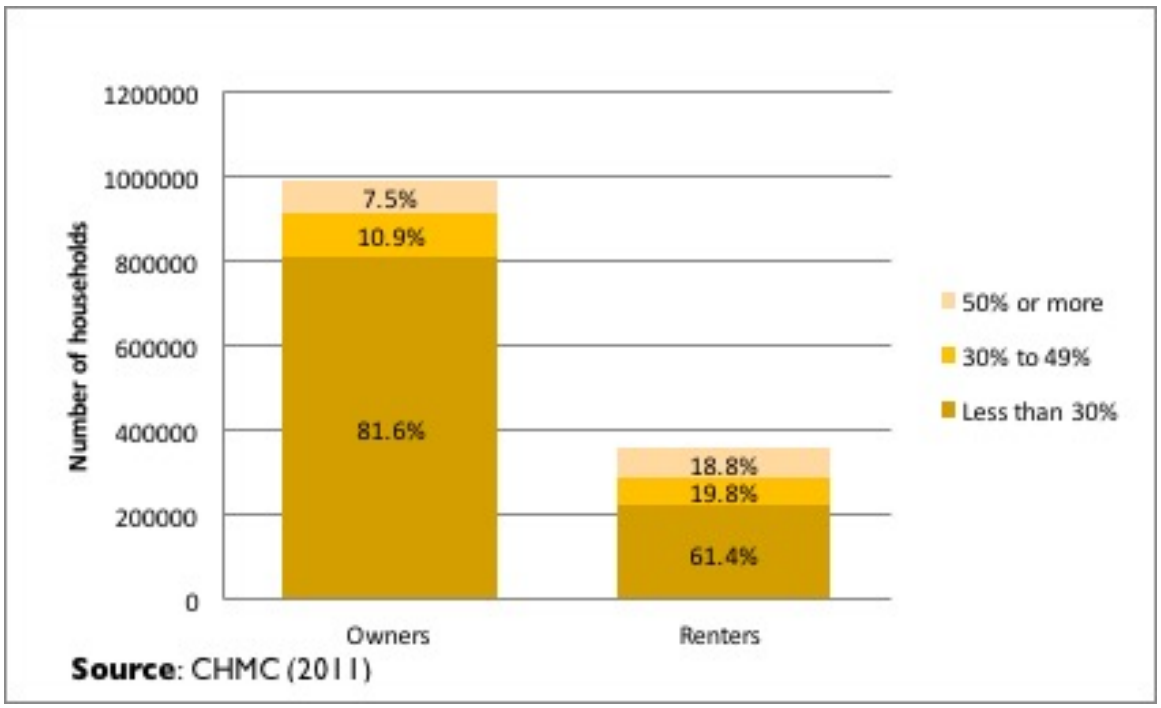

Figure 2.1. Number of Alberta Households Owning and Renting their Housing, and Distribution of Owners and Renters by Shelter Cost to Income Ratio, 2011

Source: Canada Housing and Mortgage Corporation (2011)

The provincial government response to Albertans' housing need has not been equitable or adequate. As of March 2015, over 14,200 Albertan households eligible for provincial government housing programs are wait-listed because no social housing units or rent supplements are available (Government of Alberta, 2015). This includes approximately 6,000 households who are waiting for the DTRS. This gap between the supply and demand for provincial housing assistance as reflected in the waiting list is likely to widen in the near future due to economic and demographic factors resulting from the drop in hydrocarbon prices.

2.4. Justification for In-Kind Housing Assistance

What is the rationale for in-kind housing assistance for low-income households – as opposed to an equal amount in a cash transfer? There is a well-known proposition in welfare economics that consumers may value in-kind transfers at less than the cost of

providing them, or alternatively, at less than the cost of an unconstrained cash grant (Mayo, 1985). To that, Olsen (2003) argues that the major justification for housing subsidies is the perception that low-income households should be assisted but they undervalue housing, therefore consuming a lower than socially optimal quantity of shelter for themselves and their children. While this rationale is valid if the objective of the housing program is to induce households to occupy better housing, it stands to reason that the opposite is true in instances where the primary objective of the program is to relieve the shelter cost to income burden of households already occupying adequate housing. Households in such instances would be seen as undervaluing other goods relative to housing (i.e. food, clothing) and the efficient response would be to provide non-housing subsidies (Olsen, 2003).

More intuitively, in-kind provision of housing assistance is justified by the associated positive externalities of housing. For instance, it has been argued that better housing for low-income households leads to better health for its occupants (Bratt, 2000; Kneiger & Higgens, 2002), and since some diseases are contagious, to better health outcomes for middle and high income households as well. Occupying adequate housing is also associated with positive employment, food adequacy, mental health, and educational outcomes (Kemp, 2002; Schwartz, 2006; Olsen, 2003; Kirkpatrick and Tarasuk, 2007; and Bratt, 2002). Seen from this perspective, distorting the choices of low-income households through housing subsidies would not be utility maximizing at the individual level but [may] be an overall Pareto improvement for society as a whole (Olsen, 2003).

2.5. Supply-side versus Demand-side Housing Assistances

Debates among housing scholars have often focused on whether demand-side assistance is cheaper relative to supply-side alternatives. While supply-side programs typically sidestep the private market, demand-side programs rely on the market to produce the housing units in question. A cost-effectiveness analysis of housing programs therefore involves a comparison of the total cost of producing those units with the total cost of market-based comparable private development, based on an index of the overall desirability of the unit in question. If the total cost (public plus private) of the publicly

subsidized units exceeds the cost of market-based comparators, the public supply is not cost-effective. With regards to demand-side programs, Olsen (2008) argues the approach is relatively straightforward. Four major studies of US housing programs (HUD, 1974; Mayo et al., (1980); Olsen and Barton, 1983; and Wallace et al.,1981) were unanimous in their conclusion that the total cost of various types of demand side assistance exceeded the estimated market rents by only the cost of administering the program. In contrast, several studies have found that the total cost of supply side measures in the US far exceeded the estimated market rents by more than the administrative costs (Olsen & Barton, 1983; US General Accounting Office, 2001; DiPasquale et, 2003). For instance, Mayo et. all (1980) estimated that the excess costs of US federal government new social housing projects in the US to be approximately 82 percent.

The aforementioned estimate is commonly cited in the housing literature but is only based on first-year estimates. Canadian studies commissioned by social housing advocates that utilized a life-cycle approach found supply-side measures to be more cost effective in the long run (i.e. 40 years) after the initial mortgage costs were repaid (Larmour, 1997; Clayton Research Associates, 1993). These studies have however to be questioned for faulty methodology, including omission of relevant costs, such as the opportunity cost of land, the borrowing costs of governments, requirements that non-profit operators accumulate reserve contributions, and local property tax abatements.[2] It is noteworthy to note that Mayo et. all (1980) did provide forty-year life-cycle estimates that show production costs ranging from 29 percent to 46 percent more than existing housing for social housing projects. Overall, consensus estimates point out that a dollar of spending on social housing produces 37 cents of housing, while the same dollar would have produced 85 to 90 cents of housing with housing allowances, primarily due to the cost advantage of providing low income housing through filtering (Mayo, 1980).

What accounts for the larger variance in costs in supply-side programs vis-à-vis demand side interventions? One of the most commonly cited factors is the absence of the disciplining device of the profit motive among civil servants who construct and operate social housing (Mayo et. all, 1980; Olsen, 2003). As a result, the public sector might

[2] See for example Olsen (2003) and Lampert Economic Consultancy (1999).

sponsor the production of housing in markets where the private sector would not build at all (e.g. markets with declining population and falling incomes, housing for the hard-to-house), or otherwise build them with the inappropriate "input mix", for example unionized wages for construction workers. In cases where the supply subsidy is earmarked for non-government entities, excessive profits could result from private developers, and the resources that developers devote to securing the subsidies can produce a net deadweight loss to society (Olsen, 2003).

It is worth emphasizing that the higher production inefficiencies of supply side interventions could be rationalized in terms of serving social objectives, particularly distributional goals, for which some inefficiency is merited. One such rationale is the perceived market failure for people of low-incomes who are unable to obtain adequate and affordable private market dwellings. It is argued that supply side programs add to the stock of housing that is affordable in the long run due to ongoing operating subsidies (Hulchanski, 1983; Yates & Whitehead, 1998). In contrast, the benefit of demand-side programs can be captured by private landlords who meet the increased demand for low-income housing caused by receipt of a housing allowance by increases in rents that make non-recipients worse off. It is further argued that this negative externality will only be exacerbated in times of tight supply (Klein & Copas, 2010; Drummond, 2003). Moreover, supply-side policies often have secondary benefits that are specified *ex ante* by the policymaker, for example as a stimulus to the local construction industry (Yates & Whitehead, 1998; Hulse, 2010).

Evidence of the rent inflationary impact of demand-side programs is contradictory and will be the focus of Section 4.4. More critical however is the counter-argument that equity considerations could actually be better served by demand-side programs. To illustrate, supply programs, such as social housing, are inherently unfair because there is excess demand for it at government-regulated rents. Compounding the horizontal inequity of non-entitlement, is unfairness which stems from the fact that some low-income households are content with where they are living in the private market, despite paying a burdensome rent. These households could have idiosyncratic preferences that social housing is inherently unable to meet, for instance the sentimental value that an 85-year old widow derives from living in an old family home that is now too large for her, or the fear

of a low-income household losing its long-tenure discount if it moves, and such discounts have been shown to be substantial (Kain and Quigley, 1975). Alternatively, the cost of moving can be substantial enough to offset any cost-savings associated from moving to a cheaper social housing or subsidized unit (Steele, 1985).

Horizontal equity concerns aside, there is also substantial research showing that while the incomes of social housing recipients are concentrated at the bottom of the income distribution, many people who gain entry are better off than those who do not (Aaron, 1972). One study (Murray, 1980) regressed estimates of the actual US Federal housing subsidies on annual household income, holding constant various demographic characteristics of the families. He found that there is indeed a negative relation between income and benefits, although the R^2 of the equation is 0.7, which suggests there is quite a bit of randomness in the way benefits are distributed across tenants. Supply-side subsidies being non-entitlements entail rationing of benefits, and therefore subject to the vagaries of program administrators who may prioritize certain characteristics (household size, disability, etc.) over income in deciding which household has the greatest need.

The conceptual argument for demand-side programs can also be corroborated by the lack of empirical proof that supply side programs add to the housing stock. These policies can potentially crowd out equivalent quality low income housing that otherwise would have been provided by the private sector (Murray, 1999; Simon and Waldfogel, 2001). Olsen (2012) also argues that, to the extent that subsidized construction programs lead to greater production of housing, they drive up the prices of inputs that are most important in the production of housing and thereby increase the cost of producing housing with any specified characteristics. There is also little doubt that tenant based vouchers get households into satisfactory housing much faster than any construction programs. One study by Schnare, et al. (1992) based on data of a large stratified random sample of 800 US federal housing projects built between 1975 and 1979, found that the mean time from application for project approval to completion of the project ranged from 23 months for Section 236 private sector capital programs to 53 months for conventional social housing. Note that this estimate does not even take into account occupancy time by eligible households.

2.6. Motivations for Housing Allowances

It is necessary to discuss housing allowances in the context of shifting assistance from supply-side to demand-side housing policies across the developed world, a shift that has taken place in Canada to a lesser extent (Kemp 1997; Howenstein, 1985). This shift reflects in part the view among policymakers that the problem to be tackled is increasingly an *income* rather than a *housing* one. The vast majority of Albertans in core housing need in 2011 were in this category due only to not meeting the affordability standard.

A corollary to the income problem is the perception that housing allowances allow for a more targeted approach than supply-side subsidies. This of course mirrors the wider debate and trend of the declining universality of welfare state benefits (Deacon and Bradshaw, 1983; Pierson, 1996). Whereas brick and mortar subsidies have been criticized for being captured by households of all income groups, the income and activity-based targeting of housing allowances ensures that households with the most severe shelter outlays are assisted.

Interconnected with the aforementioned factors is the emerging neo-liberal economic paradigm that emphasizes consumer choice and the retrenchment of the welfare state. Seen from this respective, housing allowances are an instrument that helps to make market housing feasible for low-income households while controlling government expenditures, as evidenced by the cost-effectiveness of demand-side assistances. More often than not, tenants of government operated or funded social housing units are given housing allowances as 'projects' are demolished or redeveloped as mixed income housing.[3] In past instances, policymakers had construed housing allowances as an ameliorating policy to cushion the impact from relaxing rent control or stabilization (Hulchanski, 1989). Thus, housing allowances help to "recommodify" the provision of housing.

Housing allowances were also seen as an evidence-based solution to the problem of overt concentration of low-income tenants in densely populated social housing

[3] A prominent example is the US Moving to Opportunity (MTO) program in which residents of federal government funded social housing units were given Section 8 vouchers to find equivalent private market rental dwellings.

developments. Social housing “projects” were proven to be sources of much crime, social unrest, and intergenerational poverty. It was widely believed that housing allowances would enable the healthier social dynamics resulting from the spatial dispersion of low-income households to mixed-income neighborhoods.

2.7. Policy Problem

Achieving better housing outcomes with less or marginal increases in public spending is desirable, and the Government of Alberta’s current fiscal situation as a result of a reduction in hydrocarbon royalty revenue only adds urgency to this task. It was illustrated that demand-side programs are more cost-effective and equitable relative to supply side alternatives. Furthermore, the provincial government’s non-market housing which is predominantly comprised of supply-side produces severely inequitable outcomes, reflected in the high amount of low-income households on social housing and rent supplement waitlists. As such, the objective of expanding provincial housing assistance is best met by building on existing demand side programs, namely the DTRS. However, this study will attempt to show that the current DTRS design is beset by deficiencies in its eligibility criteria and benefit formula which produces horizontal and vertical inequities that precludes it from assisting more households in need. The policy question is therefore to find a more equitable yet affordable way to design the DTRS to mitigate the problem of housing affordability in Alberta.

There are also other factors which motivated this study. Federal cost-sharing agreements for approximately 26,000 social housing units in Alberta, with varying funding commitments (25 to 50 years) have begun to expire, with the last expiring in 2034. Most of these units house only low-income tenants who pay Rent-Geared-to-Income (RGI) of 30 percent, with federal subsidies making up the difference in operating costs. According to an Alberta government study conducted in 2012, housing projects with full RGI units will no longer be viable, after the expiry of cost-sharing agreements, with the exception of some larger senior projects. This is likely to affect up to 50,000 Albertans who are currently residents in cost-shared RGI social housing. While the provincial government has indicated that it will assume the responsibility for ongoing operational subsidies, the total

funding shortfall is estimated to be in excess of $150 million a year in 2034 after the expiry of existing agreements.

In response, the Government of Alberta is in the process of negotiating a Social Housing Agreement (SHA) with the Federal Government that will allow it to take full administrative responsibility of existing social housing agreements in exchange for administrative flexibility and annualized CHMC contributions on a declining balance starting from $80.5 million (if signed in 2015) to $0.5 million in 2033. This will provide the provincial government with greater flexibility regarding funding, planning and redevelopment of Alberta's social housing without the prior approval of CHMC. In particular, it would allow the province to transfer subsidies and carry over unused CHMC funding to other programs, including a hypothetical expanded DTRS, without a reduction in the overall federal funds.

Chapter 3.

Methadology

3.1. Methodology Overview

The methodology utilized in this study has three components, which corresponds with the three research questions mentioned at the end of Chapter 1. The first is a literature review on housing allowances to provide insight on the design and economic theory of rental subsidy programs, for example the impact on recipients and non-recipients of differing benefit targeting mechanisms. This process will also assist in the assessment and identification of similar programs in other jurisdictions. Information will be collated from a mixture of online journal articles, academic books, government reports and legislation/regulation.

The second component is an assessment of the Alberta government's existing Direct-to-Tenant Rent Supplement (DTRS) using internal administrative data. This uses aggregated data on the characteristics of recipients, including household type, benefit levels and length of benefit spells. Other information includes aggregated data on the characteristics of waitlisted recipients. Given the lack of program micro-data, the evaluation is mostly on a conceptual basis, comparing the design of the DTRS with best practices identified from the literature review and jurisdictional scans of similar programs in Canada and the United States. Additional information is provided from ad-hoc interviews with Government of Alberta program administrators and analysts. Program deficiencies and other issues of the DTRS identified in this process serve as the basis for the enumeration and analysis of policy options in the next component.

Answering the third research question is the most important component of this study and involves two steps. The first is estimating the relevant statistics of each policy option, including the number of eligible households, the average benefit, and the total cost to government. Then using these estimates, the policy options are analyzed using a set of criteria and measures. An abbreviated description of the methodology used in this

study's policy modelling is presented in the next section (please see Appendix A for more detailed description including coding procedures).

3.2. Policy Modelling

To estimate the relevant statistics of the policy options, the study used Statistics Canada's 2009 Survey of Household Spending (SHS 2009) public-use micro-data set, which was obtained from from the British Columbia Research Libraries' Data Services (ABACUS). Policy modelling begins with the formulation of four eligibility criteria options that differ from the existing parameters of the DTRS program. Next, I examined the relevant Alberta household responses for tenure type, adjusted income, rent, size of household, and age of household head in the SHS 2009 micro-data set to determine whether the household would meet the eligibility requirements of each design option. For each qualifying household, their benefit entitlement is calculated according to three different kinds of benefit formula. The interaction of the eligibility criteria and benefit formula options creates 16 policy option sets.

The value of each household's benefit is then summed up to obtain the policy option sets' total projected expenditures. These amounts are adjusted by weighing each observation so that it corresponds with the estimated total number of Alberta households in Canada. Given data limitations (see below), all the policy option sets are entitlement programs that assume a benefit take-up rate of 60 percent, which is typical of most housing allowance programs in North America (Steele, 1985; Finkel et. all, 2006). I am unable to model policy options that have a set budget and prioritize applicants based on their relative need. This would require inferring from a regression analysis of DTRS program microdata to uncover the probabilities of applicants receiving a benefit given their characteristics (i.e. pre-subsidy shelter-cost-to-income ratio, number of dependents, etc.), information which I do not have access to.

3.3. Methodology Limitations

The methodology used here for policy modelling generates the potential program outcomes of different housing allowances options, including number of beneficiaries, total cost to government, average benefit levels and distribution of beneficiaries in terms of income level and household characteristics. There are limitations to my methodology, specifically sample problems and certain restrictive assumptions.

3.3.1. Sample Problems

The 2009 Survey of Household Spending (SHS) dataset has the most comprehensive information on Albertans' expenditure patterns, including more detailed information on respondents' household type and dwelling characteristics than the Census. However, this sample of Alberta households has several limitations. First, voluntary surveys have the propensity to under-sample low-income households, aboriginals and other vulnerable groups, which are the subject of this study. Statistics Canada tries to minimize non-response bias by applying weights to each sample unit.

Second, SHS 2009 excludes three categories of people: (1) residents in institutions; (2) members of Canadian Armed Forces living in military camps; and (3) people living on Indian reserves (Statistics Canada, 2015). Statistics Canada estimates these exclusions make up approximately two percent of the population in Canada. However, First Nations people make up a higher proportion of the population in Alberta than the Canadian average (6.2 percent versus 4.3 percent). This could be problematic because First Nations people are often mobile and may be travelling to and from reserves on a regular basis. Furthermore, they are often overrepresented among those experiencing housing instability, homelessness and affordability problems (Patrick, 2014).

Last, the SHS 2009 dataset omits three additional key pieces of information: (1) what specific community in Alberta are the households residing in; (2) how long the households have been residents in the province; and (3) the household's total asset level. Given that the DTRS is administered by local housing management bodies (HMBs) based on program parameters that are specific to their local community (e.g. median rent, maximum subsidy, local housing income limits), the estimates produced by our

methodology could potentially be understated or overstated as they are based on provincial averages. Due to omissions (2) and (3), this study cannot eliminate households that fail to meet the DTRS' asset limits and residency requirements. The number of households estimated to be eligible under each eligibility criteria option could potentially be overestimates

3.3.2. Limiting Assumptions

In order to operationalize the policy modelling, a number of assumptions had to be made. Primarily, the estimates in my analysis are achieved using the *static cost method,* which assumes no behavioral change on the part of recipients and landlords to change in incentives. More realistic estimates could have been obtained from what Steele terms the *dynamic cost estimate* that takes into account the behavioral response and feedbacks from the rest of the economy (1985). This distinction is pertinent to the discussion of housing allowances because the subsidy may increase recipients' consumption of housing services, which might lead to rent inflation due to private market supply rigidities. In addition, the subsidy could have a perverse effect: it may discourage employment, thus leading to declining income that induce a higher housing allowance. As a result, cost estimates using the dynamic cost approach may be substantially higher than the static cost method implies (Steele, 1985). Empirical evidence on the extent of such perverse responses has proven them to be small and will be focus of Chapter 4.4.

A more substantial limitation of my methodology is the assumption that the participation of eligible households is exogenous at 60 percent. While an average participation rate of 60 percent is consistent with the evidence from other housing allowances in Canada and the United States, the assumption of a constant participation rare across income levels and household types is likely to be flawed. Research has shown higher participation rates among poorer and larger households for the US Housing Choice Voucher (HCV) program (Schwartz, 2006). In addition, my policy options could have the effect of reducing participation among certain groups because the benefits received might not be substantial enough to offset the costs of participating (e.g. taking the time to fill an application, social costs due to stigma or pride).

Chapter 4.

Evaluating the Direct-to-Tenant Rent Supplement (DTRS)

4.1. Framework for Evaluation

As mentioned in Chapter 2 (*Methodology*), the scarcity of administrative data precludes a comprehensive evaluation of the program. What this Chapter aims to achieve is a conceptual evaluation of the program's design features according to the principles of economics. This study draws on the framework that Olsen (2005) prescribes for the evaluation of housing subsidy programs:

- The program must induce the worst-housed families at each income level to occupy better housing than they would choose if they were given equally costly cash grants with no strings attached;
- families that are the same with respect to characteristics of interest to taxpayers should be offered the same assistance (*horizontal equity*);
- the greatest assistance should go to the neediest families (*vertical equity*); and
- the housing provided to participants should have the lowest possible total cost to tenants and governments given its overall desirability.

This chapter begins with a brief description of the DTRS' objectives and a deeper examination of its eligibility criteria and benefit formula in light of the housing economics literature and comparison with housing allowances in other jurisdiction. From then on, program impacts in the form of behavioral incentives, disincentives and equity considerations will be discerned.

4.2. Program Objectives

Housing allowances can have either housing policy or social security objectives (Hulse, 2002; Howenstine, 1986; Kemp; 2007). From the former perspective, the purpose of the allowance is to allow low-income households to afford "adequate" housing that meets minimum standards in terms of its condition and size relative to household needs.

A critical measure of the program's success when viewed from this perspective is the degree to which recipients devote the benefit to an increase in the consumption of housing services.[4]

From a social security perspective, the role of housing allowances is to enable recipients to reduce their share of income devoted to housing expenditures. Housing unaffordability, as opposed to low housing standards is the main policy problem. In such instances, it would be more appropriate to measure the effectiveness of the program in terms of how much additional food and/or other necessities it allows recipients to purchase (Steele, 2007). Canadian housing allowances tend to have this primary objective, although in practice housing allowances can serve both functions without necessary contention (Steele, 2001; 2007).

Expert correspondence with Alberta Seniors staff as well as content analysis of departmental annual reports indicate the DTRS is intended primarily as a social security program. It has been described as "supporting households in need of affordable and suitable housing by subsidizing rents in private sector rental accommodation" (Government of Alberta, 2008). As already indicated in Chapters 1 and 2, this implies the fundamental policy problem in Alberta is housing unaffordability.

4.3. Targeting Mechanism

When determining eligibility for benefits, all housing allowance programs in North America use a combination of *income-testing*, *activity-based testing* and *categorical targeting*. The first pertains to income limits, which are normally differentiated according to the size of household, and sometimes by community size to take into account geographical variations of shelter costs. To further integrate housing allowances with other income security programs, the approach in North America has been to:

[4] This is the explicit objective of the United States' Housing Choice Voucher Program (Schwartz, 2006) along with the secondary and related objective of eliminating racial segregation of minority renters.

- include in the countable income for a housing allowance the benefits from general income security programs (a procedure called sequencing);
- exclude from countable income benefits for special needs, such as subsidies from prescription drugs; and
- deduct from the allowance the benefit from any program considered to have the same goals (Steele, 1985).

Activity-based testing refers to the requirement that households spend a certain percentage, normally 30 percent of gross household income on shelter costs to be eligible. Requiring recipients to pay a certain percentage of the rent has been justified on the almost tautological grounds that people should contribute some portion of their living expenses (Kemp, 2002). Moreover, it formally identifies people with the largest, relative to income housing expenditures (Kemp, 2002). Moral hazard is also a significant factor behind the minimum contribution requirement and will be discussed in Chapter 4.4.

Finally, *categorical testing* refers to eligibility based on households meeting certain innate characteristics. In the case of Canadian housing allowances, eligibility is restricted to only renter households, given that households experiencing core housing need are concentrated among this group and the fact that assistances for homeowners is already provided by the CHMC in the form of mortgage insurance. The exception to that rule is Quebec's *Allocation Logement*, which is open to low-income homeowners as well. Besides tenure type, eligibility for benefits can also be restricted to household composition, such as seniors or working families with children. The choice of eligible households is conditioned by the *ex ante* objectives and preferences of the policymaker.

Relative to other housing allowances in Canada, eligibility for the DTRS is fairly broad as the program is targeted to any low-income renter experiencing core housing need (see Appendix C for list of housing allowances in Canada and their targeted recipients). This contrasts with the more targeted approach in other provinces, for example solely households with children and whose source of income includes earnings from work in BC's Rental Assistance Program (RAP). Two additional criteria further distinguish the DTRS from other housing allowances in Canada. Firstly, Alberta and Quebec are the only two provinces that extend eligibility to provincial welfare recipients, which could be a potential source of horizontal equity if the DTRS recipient is also on welfare given that

Alberta Works (the provincial welfare program) already includes a shelter assistance component. Moreover, provincial social housing tenants and recipients of other forms of housing subsidies, be it federal or municipal, are not excluded from eligibility. The preponderance of housing subsidy 'double-dipping' is beyond the scope of this study but horizontal inequity would be exacerbated if such cases were to exist. To provide an estimation of how broad eligibility was for the DTRS given its current program parameters, I estimated the number of eligible households using the SHS 2009 dataset to be 91,403 households. In contrast, BC's Rental Assistance Program, which is targeted only to working age adult households with at least one child, is approximately 27,200 (Croll, 2015).

Despite the DTRS' broader eligibility, the program is not an entitlement whereas other housing allowances in Canada (with the exception of Yukon's) guarantee benefits to all who apply and fulfill the eligibility requirements. Participation rates in the entitlement programs are however far from 100 percent with figures fluctuating from a low of 55 percent in Manitoba to a high of 72 percent in Quebec (Steele, 2007). The latter's higher take up rate can be explained by its automatic enrollment process through its own income tax collection agency. The fact that the DTRS is rationed through a waitlist has significant impacts on equity, and will be the main subject of Chapter 4.5.1.

4.4. "Full" versus "Partial" Affordability Gap Plans

As mentioned in Chapter 2, the DTRS is a full affordability gap plan that subsidizes 100 percent of the difference between actual market rent and 30 percent of the household's adjusted gross income. The benefit formula presented on page 19 can also be represented in a budget constraint diagram illustrated on Figure 2. On the horizontal axis h is the quantity of housing services, and on the vertical axis y is household income. The household's initial budget line with no subsidy is given by the line AC and it is assumed that the renter consumes at point B, yielding housing services of h_0 and y_0 (= 0.6*OA) quantity of other goods. Assuming that B implies spending 40 percent of the household's income, the government decides to provide a subsidy equivalent to the formula S= $(R - 0.3Y)$. The household's new budget line is now AD_oDEF, which allows it to consume the bundle of goods at point D with h_{min} amount of housing. We assume this is the minimum

costs needed to rent an adequate unit meeting the Housing Management Body's minimum standards for receipt of the DTRS.[5]

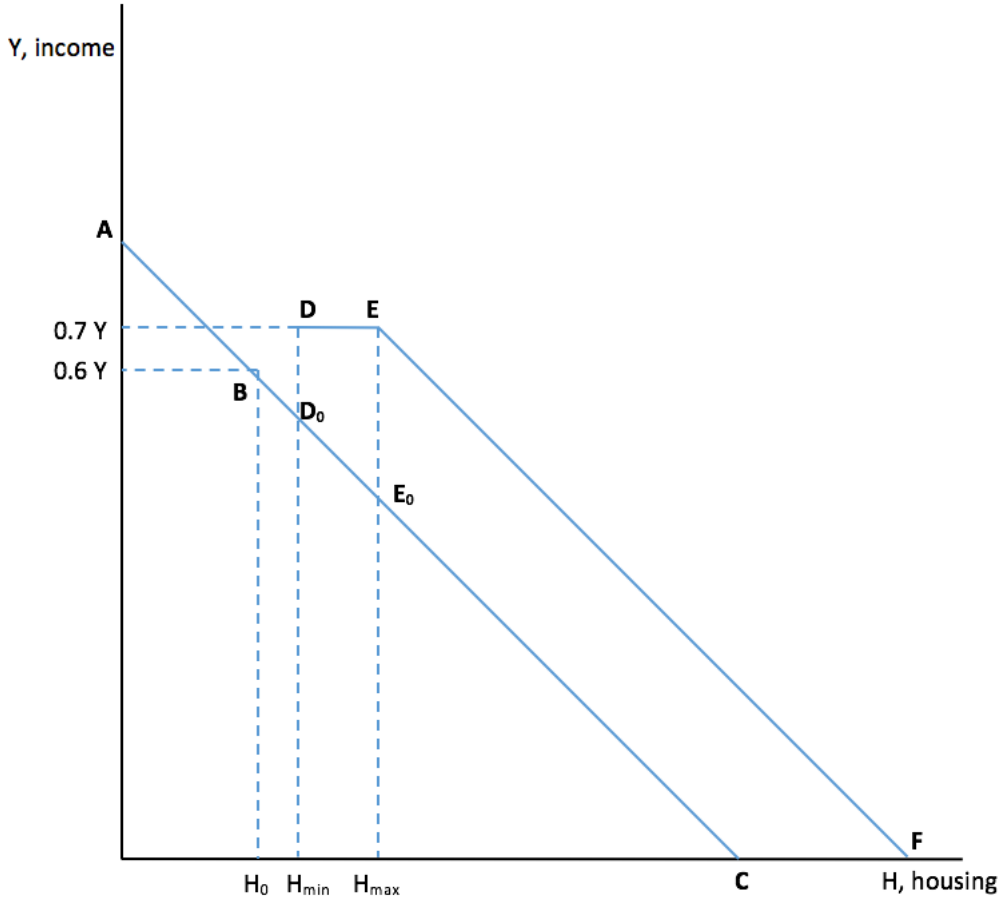

Figure 4.1. Budget Space of DTRS Recipient (Alberta)

The straight, horizontal line DE represents the range of housing services subsidized by the government through the DTRS. Note that the marginal cost of occupying units between D and E, which corresponds to the covered amount of housing, is zero. For the rational consumer who values both more housing and more consumption of other

[5] The Housing Management Bodies (HMB) do not inspect the units but merely verifies it during the application phase when the recipient submits their proof of rent (receipts, rent stubs) that will also include information on the condition of the unit (i.e. the number of rooms, the number of bathrooms, whether substantial repair is required etc.). This is in direct contrast to the US Housing Choice Voucher program. The exact conditions differ from one HMB to another, but it is likely to be minimal to the point that it does not constraint the recipient's choice of private rental units.

goods, the optimum is probably at E. The distance EE_o is the upper limit of subsidy that DTRS will pay. In other words, the program incentivizes recipients to consume at the maximum subsidized housing rent or the amount of housing services (h_{max}). Beyond E, the household pays the full market price for additional units of housing, and the DTRS is a fixed income supplement. This is also true if the household is already consuming at or to the right of point E, even before receipt of the DTRS. The extent to which the DTRS actually incentivizes "inefficient" search and approximates an unrestrained cash transfer is the subject of Chapter 4.4.

An important benefit of the DTRS, when compared to social housing, that cannot be illustrated on Figure 2 is the freedom it affords the household to choose its housing bundle, subject to the minimum standards condition. The recipient may, for instance, prefer to spend a given number of rent dollars on more space but less high maintenance than a government-built unit. The DTRS allows to do so.

Conversely, the British Columbian, Manitoban and Quebec programs are "partial affordability gap" housing allowances in that they have *α* values of less than one. For the purpose of illustrating graphically the budget constraint of a "partial gap" allowance in Figure 3, we utilize the benefit formula for Quebec's *Allocation Logement* (AL) program as shown below:

$$S = 0.75(R - 0.3Y) \text{ if } R \text{ is } > R_{min} \text{ and } < R_{max}$$

$$S = 0.75(R_{max} - 0.3Y) \text{ if } R \geq R_{max}$$

Note that in contrast to the DTRS or the US HCV program, the additional constraints for the Quebec program is the requirement that rents be above a certain minimum level. This ensures that very low-income households paying a low rent (i.e. paying reduced rent because of living with relatives/friends) are not assisted, even if this rent is more than 30 percent of their income. Quebec is the only province in Canada that has a minimum rent constraint and it is intimately linked to the history of the AL program (Steele, 2005). Similar to the DTRS, any rent amount above the maximum rent is not subsidized.

Following the example of Figure 2, Figure 3 illustrates the budget constraint of an AL recipient. ABC is the household's initial budget constraint and point B is the bundle of goods consumed with that budget constraint, yielding h_0 amounts of housing services and y_0 amounts of other goods. At point B, the household is spending 40 percent on housing, which qualifies it for the "partial gap" allowance. The government provides a housing allowance yielding the new budget constraint AD_0DEF. Note that from D to E, an additional unit of housing services costs the household only 25 percent of its market value, in contrast to the marginal cost of zero in the DTRS. Then from E to F, the household again has to pay the full market price for housing units as E corresponds to h_2 quantity of housing services, which is also the maximum rent level.

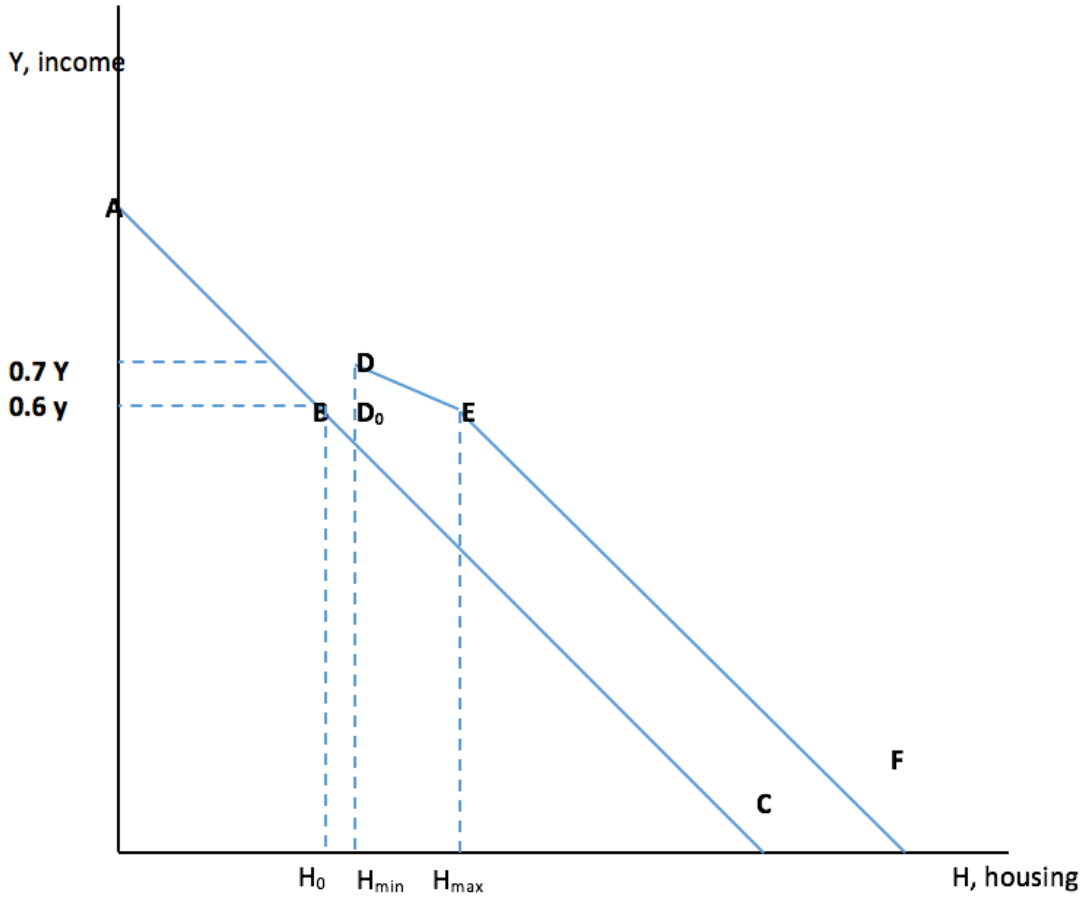

Figure 4.2. Budget Space of Partial Affordability Gap Plan Recipient

In addition, the "partial gap" allowance can be designed such that the affordability gap subsidized or the contribution rate is a function of household size (also known as

partial variable plans). This could be operationalized by setting either α or β in Equation1, such that the greater the number of dependents in the family, the higher the affordability gap subsidized. For instance, Steele (1985) suggests that contribution rates should be 40 percent for a one-person household, 30 percent for two, 25 percent for three, 22.5 percent for four, and 20 percent for five or more.

The rationale for such an approach is that larger households require a greater amount of income net of housing expenditure to spend on food, clothing and other expenses in order to achieve the same level of utility per person (Hulchanski, 1995). Assuming that the maximum rents are also larger for larger households (i.e. all things being equal, a unit with more rooms will cost more), this implies that the price subsidized rent range is greatly increased at a given income level the greater is household size. Furthermore, for households already spending at or more than the threshold level, the "partial affordability gap" plan could be characterized as an income maintenance scheme in which the support level is greater and negative income tax less, the greater is household size. For instance, assuming the affordability gap subsidized is 75 percent and the contribution rate follows the parameters suggested by Steele (1985), the tax rate would be 30 percent for one person but only 15 percent for a family of five. While all Canadian housing allowances vary the maximum rents by size of household, only the Manitoban program varies contribution rates by family size. Differentiating either the contribution rate or affordability gap by household size is also the norm in most European housing allowances (Holwenstein, 1985; Kemp, 2007). This approach is ultimately more vertically equitable than a static contribution rate because it provides a bigger benefit to larger families who need it.

4.5. Comparing the Direct and Indirect Program Outcomes of the DTRS with Other Housing Allowances

4.5.1. Core Housing Need and Horizontal Equity

It is implicit in the full affordability gap housing benefit formula that it eliminates the core housing need status of those recipients who failed to meet CHMC's affordability standard. In the case of the DTRS, the requirement that rental units meet adequate

standards including the appropriate number of rooms given the size and composition of the household means that core housing need is eliminated for virtually recipients irrespective of the contributing problem.[6] Conversely, partial affordability gap plans only reduce the depth of core housing need for recipients experiencing affordability problems, but otherwise leaves the same number of households with core housing need.

Given a fixed housing subsidy budget, there is a trade off between elimination of core housing need for some and the number of subsidy recipients, or more intuitively, the depth of the subsidy versus the scope of coverage (Rosenthal, 2007). As a result, the average monthly DTRS is greater than the average monthly housing allowance in other provinces (see Table 4).

The fact that the DTRS is not an entitlement program means that there will be horizontal inequity between households who meet the program's eligibility requirements and receive the benefit, and those eligible but not recipients. Estimation of the SHS 2009 dataset reveals that an estimated 91,403 households were eligible for the DTRS in 2009 but only 6,667 households, or 7.3 percent were recipients.[7] The DTRS thus has severe horizontal equity problems. Coincidentally, horizontal equity is also the most prevalent criticism of social housing and other supply-side programs because demand for the subsidized rent units exceeds the total number of units available. The DTRS only replicates the unfairness of social housing despite housing allowances being frequently conceived as its replacement. As a result, the number of waitlisted households for the DTRS in 2015 is exceedingly high at over 6,000 households (Government of Alberta, 2015).

The non-entitlement nature of the DTRS entails rationing through a waitlist process that prioritizes applications based on need. Alberta Seniors staff has highlighted that the

[6] This is only true to the extent that the difference between actual market rent and 30 percent of the household's gross income is lower than the maximum subsidy. In cases where actual market rent of recipients exceeds maximum rent subject to a subsidy, the post-subsidy rental cost to income ratio might be more than 0.3.

[7] The number of Albertan households experiencing core housing need is unlikely to have drastically changed from 2009 to 2013. Even if the incidence of core housing need were to decrease, it is unlikely to invalidate the study's argument of the DTRS' severe horizontal equity issues.

distribution of beneficiaries is heavily tilted towards clients with costlier housing needs. Those are households with two or more dependents requiring two or more bedrooms

Table 4.5.1. Mean Benefit of Select Canadian and US Housing Allowance Programs

Jurisdiction	Program name	Average Monthly Housing Allowance Benefit (in 2015 CDN dollars)
Alberta	Direct-to-Tenant Rent Supplement Program	407.69
BC	Rental Assistance Program	382.91
	Shelter Aid for Elderly Renters	161.55
Quebec	*Allocation Logement*	67.35
Manitoba	Shelter Allowance for Family Renters	201.11
United States	Housing Choice Voucher Program (formerly Section 8 vouchers)	607.92

Sources: Data from Alberta from Government of Alberta (2015); Data for BC from BC Housing (2014); Data for Quebec from Steele (2002); Data from United States from Schwartz (2015); Data for Manitoba taken from Finkel et al. (2006).

and/or with Shelter Cost to Income Ratios (STIRs) of 50 percent or more. However, the group that had the highest incidence and absolute number of core housing need in 2011 was unattached singles (Statistics Canada, 2014). This plus the fact that households with children already receive assistance in the income tax system through federal and provincial tax credits and income supplements exacerbates the horizontal inequity faced by unattached singles vis-à-vis households with children. In addition, the program's eligibility standards do not exclude provincial income assistance (Alberta Works) recipients, as is the case in British Columbia and Manitoba, even though it already has a rent assistance component (with a maximum monthly benefit of $475).

Horizontal equity issues are also present in entitlement housing allowance programs because not all eligible households participate in the subsidy. This could result from a number of factors including administrative hurdles (due to stigma and misinformation), or just the fact that eligible households are not aware of the program's existence. Nevertheless, entitlement programs will have less horizontal equity issues because they guarantee benefits to all eligible households that apply. For example, Croll (2015) estimated that 15,200, or 55 percent of the 27,200 eligible households in 2009 were recipients of BC's Rental Assistance Program.

4.5.2. Vertical Equity Issues

Notwithstanding the greater distribution of beneficiaries among households with two or more dependents, the current benefit formula under-assesses the affordability problem for large households at the margin. Specifically, it assumes that all types of households will have an affordability problem if they spend 30 percent or more of their income on shelter. Larger households however have more expenditure needs than singles, for example paying for their children's food, education and medical expenses (Croll, 2015). A shelter cost to income ratio of less than 30 percent might be a more appropriate measure of affordability for large families. In terms of program design, varying either the contribution rate or the percentage of the affordability gap subsidized such that larger households will have to pay a lower proportion of the rent will introduce more vertical equity to the program. Conversely, setting a higher contribution rate or lower affordability gap subsidized for individuals, say 40 percent or 50 percent respectively, will provide some form of assistance to low-income singles while reining in program costs.

4.5.3. Housing Consumption and Moral Hazard

The objective of housing allowances is to augment the financial capacity of households to afford adequate housing. Increasing recipient's consumption of housing services is however desirable only up to a point. While the DTRS does seek to incentivize the recipient to "shop around" by setting a maximum subsidizable rent and maximum subsidy, the rational consumer will consume at the maximum rent because the marginal cost of consuming up to that point is zero (the horizontal line DE). Contrast this with the approach of Quebec's *Allocation Logement* that only subsidizes $0.75 of every $1.00 increase in rent up to the maximum rent. The incentives to increase housing consumption is apparently larger for "full affordability gap" housing allowances.

In fact, the incentive is much smaller than it first appears. One reason has to do with the shortness of the price-subsidized range in the DTRS (the horizontal line DE). Depending on the community, the distance between the minimum rent needed to rent an adequate unit and the maximum rent can be short or non-existent at all. It will also be short for households with income close to the breakeven level, as Steele (1985) argued is typically the case for seniors, who are beneficiaries of income supplements.

Another substantial limitation is the invisibility of the price-subsidized range to recipients. The maximum rent and maximum subsidy is not public information, although they could be imputed from CHMC data on average or median rents in their community[8]. Even then, this information is only available on a quarterly basis. This uncertainty is further compounded by the fact that the maximum benefit is not indexed to inflation and that the recipient could lose the long-tenure discount of its existing unit if it moves. Given that Alberta has no rent stabilization or control regulation in place, the incentive will be stronger to find cheaper units that will withstand future increases in rent.

Perhaps more important is the possibility that the household's consumption of housing service is already above optimal. This may occur because of the limit on housing choice caused by municipal building by-laws and housing standard regulations, which Malpezzi (1996) shows is an important factor underlying the price of homes. In terms of figure 2, the households could already be consuming at h_{min} because a unit yielding an amount of housing services less than h_{min} simply does not exist. Alternatively, current housing consumption may be rendered non-optimal because of changes in the characteristics of the household that have occurred since it first moved to its current accommodation. Examples include a widow occupying the same two-bedroom apartment she occupied a decade earlier when her husband died; or a single-parent mother occupying the same apartment she did before her husband deserted her. In such cases, the actual consumption exceeds desired consumption levels because of adjustment lags. Receipt of the DTRS is unlikely to induce higher housing consumption.

This moral hazard problem is further ameliorated by the available empirical evidence. Correspondence with Alberta Seniors staff indicated that most recipients of the DTRS are adequately housed but are paying a disproportionate share of income on shelter at the time of application. As a result, many recipients of the DTRS do not move to look for better accommodation after receipt of the benefit, but rather use the benefit as an unconstrained cash transfer by spending on non-housing goods and services. This imputed low (in some cases zero) positive income elasticity of the demand for housing services is a feature shared by many housing allowance programs. Analyses of the

[8] One notable exception is the Edmonton HMB (Capital Region Housing Corporation) which publicizes information on the year's maximum monthly DTRS benefit ($500).

housing consumption data of Experimental Housing Allowance Program (EHAP) participants by Hanushek and Quigley (1980) and Venti and Wise (1982) suggested a moderate effect on housing consumption given that the income elasticity of demand for housing services in the experiment was below 0.5.

4.5.4. Rent inflation and Landlord Behavior

The most persistent criticism of housing allowances, whether they be "full affordability" or "partial affordability" gap plans, is the perceived rent inflationary impacts[9]. Housing allowances increase the demand for a narrow spectrum of housing services, which in the DTRS are private market housing that meets the HMBs' minimum requirements but with rents below the local maximum allowable. This effect is theoretically likely to be exacerbated for full affordability gap housing allowances because of the perceived incentives to consume at the maximum subsidizable rent. In the short run, there is lack of supply to meet the increased demand, which drives up rents. Non-entitlement further exacerbates the issue because non-recipients also end up paying a higher rent despite receiving no assistance. Private landlords therefore capture part or all of the housing allowance supposed benefits.

Evidence of the rent inflationary impacts of housing allowances is contradictory. European case studies tend to show a significant impact whereas American studies of Section 8 vouchers and its variants demonstrated modest or no impacts.[10] An earlier study by the CHMC (Howard & Johnston, 1979) based on the economic simulation of the impact of a hypothetical housing allowance in Toronto showed significant impacts . However, empirical studies by Steele (1985) of Manitoba's SAFER program illustrated negligible effects on rental prices. Differences between European and North American examples have been hypothesized on the relatively small number of recipients in the latter, as opposed to the former where portable housing allowances are an important element of the welfare state (e.g. UK's Housing Benefit) (Croll, 2015). In Alberta for example, the number

[9] For examples of both academic and non-academic criticism, see Hulchanski (2003), Klein and Copas, (2010), Drummond (2003), and Swanson (2014).

[10] For European studies, see Fack, 2006; Gibbons and Manning, 2006; Laferriere and Le Blanc, 2004; and Viren, 2013. See Susin, 2002 for American studies.

of rental units occupied by DTRS recipients represented less than 2 percent of the total number of private market rental units in the province in 2013 (CHMC, 2014).

Rent inflation from the DTRS is further hypothesized to be small for an additional two reasons. As mentioned, the most pertinent factor is the low income elasticity of housing where DTRS recipients use the benefit to offset existing shelter cost as opposed to moving and looking for better (and consequently more expensive) housing. The second is the fact that the DTRS is paid directly to the tenant and the opaqueness in which the DTRS is calculated given that the maximum rents and allowable benefits are not public information. Interviews with Alberta Seniors staff reveal that most landlords do not know that tenants are recipients of the DTRS. Evidence from other provinces also corroborates the hypothesis that little rent inflation will result if the landlord is unaware that tenants are housing allowance recipients. To illustrate, Quebec at one time required *Allocation Logement* recipients to certify their rent with landlords, which identified them as housing assistance recipients (Steele, 1985). After observing market rents rising at more than the market rate, the Quebec authorizes dropped the requirement that rent be certified by the landlord, and found the differential increases ceased (Steele, 1985). Likewise, a Manitoba government review of its housing program reported that most landlords of survey recipients did not know that their tenants were receiving an allowance and there is no evidence of significant price effects (Manitoban Housing and Renewal Association, 1982).

4.5.5. Marginal Effective Tax Rates (METRs) and Work Disincentives

A potential consequence of receiving the housing allowance is reduced income from employment. From equation 1.1 on Page 22, tenant contribution to rent increases with income. The marginal tax rate of earning an additional dollar of income for recipients of the DTRS is 30 percent. This tax rate is “stacked” on other income-tested benefits, including the Canada Child Tax Benefit, Employment Insurance, Canada Pension Plan, the federal Working Income Tax Benefit, the Alberta Family Working Supplement and Alberta Family Working Tax Credit – plus the personal income tax. Over the $15000 – $35000 annual earnings range, many Canadians, Albertans included, face a combined marginal effective tax rate on earnings above 60 percent, before adding the impact of.

Work disincentives might retard self-sufficiency, which only prolongs benefit spells and increases program cost to the government. Both Quebec and Manitoba have avoided the problem of a large marginal effective tax by making the income for the housing allowance lower than the income at which CCTB phase out begins (Finkel et. all, 2007).

The situation in Alberta is somewhat different given the usage of housing income limits (HIL) to determine eligibility. The HIL varies according to geographic location and the number of rooms needed to suitably accommodate a family. As such, HILs at high cost communities (e.g. Edmonton, Calgary, Fort McMurray) and for families with many dependents tend to be much higher than the income at which phase out of other income-tested benefits begin, thus producing large marginal effective tax rates.

The cumulative disincentive effects from high METRs ultimately depend on how transparent these mechanisms are to recipient households. Two expansive reviews of American studies considering the effects of housing assistance on HCV recipient's success in securing employment found no demonstrable differences between households receiving housing assistance and those without it (Shrouder, 2002; Newman, 2008). However, these studies did not distinguish between households living in public (social) housing and those receiving tenant-based assistance. To augment this research gap, several studies (Olsen, 2005; Mills et. all, 2006; Hetling and Botein, 2013) undertook an econometric study of the differing disconnection from work between social housing residents and recipients of the US Housing Choice Voucher. When controlling for individual characteristics and state level variables, the studies found that the work disincentives for housing allowances recipients were significantly smaller than social housing residents. This relationship was partially explained on the higher likelihood that voucher recipients live in physical and social communities that offer more socio-economic supports (Mills et al., 2006; Hetling and Boltein, 2013). Two additional strategies could be applied to improve work incentives of housing allowance recipients, at least on the extensive margin. The first is to set workfare requirements in the eligibility criteria for benefits, for example BC's Rental Assistance Program (RAP) which necessitate applicants to have some employment income, or reforms to the former Section 8 Voucher in the United States under the proposed Section 8 Voucher Reform in 2006 that allowed individual housing authorities to set minimum work requirements for voucher recipients.

Theoretically however, partial gap allowances would have lower work disincentives vis-à-vis full gap allowances due to the lower benefit clawback rate in the former. To illustrate, a DTRS recipient was already shown to have a marginal tax rate of 30 percent for every additional $1 in un-exempted income. Contrast this approach with a hypothetical partial affordability gap housing where the percentage of gap subsidized differs according to household size. A single person with percent of gap/contribution rate of 60/30 will only have a marginal tax rate of 18 percent, whereas a couple-parent household with three kids will have a percent of gap/contribution rate of 90/30 and a marginal tax rate of 27 percent. A higher per cent of gap provides a higher initial benefit for a single person, but it will also result in steep tax rates as income rises. The selection of the per cent of gap and contribution rate should balance the need for a reasonable housing benefit with the need to keep marginal effective tax rates low.

4.6. Other Program Deficiencies of the DTRS

4.6.1. Timing and Responsiveness

There are no time limits with regards to receipt of the DTRS. Recipients are reassessed on a rolling 12-month basis for their continued eligibility for the program. Type I errors are inherent in this program design given the possibility that recipients might have earned more than the appropriate Core Need Income Threshold (CNIT) amounts in the time between initial receipt of the benefit and reassessment 12 months later. More frequent renewals on a 6-month or quarterly-basis are technically feasible but will imply greater administrative costs on the individuals Housing Management Bodies.

A more substantial defect of the DTRS with regards to timing matters is the duration of waiting and receipt of benefit. Earlier, I made the case that the DTRS is almost analogous to social housing given that recipients' pay rent-geared to income of 30 percent. Moreover, the needs-based prioritization system ensures that the distribution of beneficiaries is heavily concentrated among the neediest, and therefore costliest clients. As a result, recipients not only spend a long time on the waitlist but also experience a relatively lengthy benefit spell. The DTRS is thus unable to respond to short-term hardships or changes in client demand due to economic fluctuations. To illustrate,

approximately 60 percent of recipients receive benefits for more than 6 months. No information was forthcoming on the average waiting times, but Painter (1997) found it to be 18 months in the US Housing Choice Voucher Program, which is similar in design to the DTRS. In contrast, the typical length of a benefit spell in the Manitoba housing allowance program was under a year and Germany's Wohngeld has an average benefit spell of only 8 months (Steele, 1985; Kemp, 1997). Both programs cover less than 100 percent of the affordability gap and are entitlement programs.

4.7. Summary of DTRS Evaluation Findings

Returning to Olsen's (2005) framework for evaluating housing subsidy programs that is re-represented below, the DTRS was shown to satisfy some criteria while underperforming in others:

- The program must induce the worst-housed families at each income level to occupy better housing than they would choose if they were given equally costly cash grants with no strings attached;
- families that are the same with respect to characteristics of interest to taxpayers should be offered the same assistance (*horizontal equity*);
- the greatest assistance should go to the neediest families (*vertical equity*); and
- the housing provided to participants should have the lowest possible total cost to tenants and governments given its overall desirability.

With regards to criterion 1, the main housing problem in Alberta stems primarily for unaffordability of the existing housing stock, as opposed to low-quality. Most DTRS recipients were already residing in adequate size and quality housing at the point of initial application for the DTRS. As such, there is no public policy imperative to increase DTRS recipients' expenditure of housing. The imputed low income elasticity of housing demand among recipients also dampens any potential rent inflation impacts, which satisfies criterion 4. However, this could be further improved by changing the DTRS' benefit formula to a partial affordability gap plan.

Major deficiencies were discerned in terms of criteria 2 and 3. To reiterate, the DTRS was shown to have an expansive eligibility criterion that targets the benefit to any household experiencing core housing need that satisfied the eligibility requirements. This

contrasts with the more targeted approach in other jurisdictions. Non-entitlement also ensured some households are treated more favourably to others, despite sharing characteristics of interests to taxpayers as defined in the DTRS' eligibility criteria. One such group are households with child dependents, who are eligible for various provincial and federal child tax credits, relative to single unattached adults who experienced higher incidences of core housing need. Notwithstanding this, a vertically equitable housing allowance should apportion a higher benefit to larger households to recognize their larger and disparate expenditure needs. The DTRS' current uniform, full affordability gap formula fails in that regard. An entitlement-based housing allowance therefore needs to tighten the eligibility criteria and adopt a benefit formula that allows for participation by a higher number of recipients whilst improving vertical equity among different groups of eligible households.

[See Appendix C for tabular form]

Chapter 5.

Policy Options

Unlike major means-tested transfer programs, housing assistance is not an entitlement, despite the purpose of the Alberta Housing Act to "enable the efficient provision of a basic level of housing accommodation for persons who because of financial, social, or other circumstances require assistance to obtain or maintain housing accommodation". No coherent justification for this feature of housing subsidies vis-à-vis other entitlement benefits has been provided. That is, no one has explained why we should offer assistance to some but not all households with the same characteristics. This feature is the main deficiency of supply-side housing assistance, but is replicated in the DTRS due to its non-entitlement nature. The short-term objective of this report's policy options is to design the DTRS such that it would be an entitlement benefit that reduces the horizontal and vertical inequities, while maintaining the total budget cost within a reasonable limit. To achieve this, two components of the DTRS need modifications: (1) the eligibility criteria and (2) the benefit formula. This report will present four options for tightening the eligibility criteria and three options for designing the benefit formula. The interaction of the two creates 12 policy options sets which will be modelled to produce quantitative program outcomes. These will then be assessed using a set of criteria and measures in Chapter 7.

5.1. Options for Determining Eligibility

Based on the information and analysis presented in Chapter 4, I have identified four options for determining eligibility to the DTRS. These options could have the potential of improving the targeting of the subsidy to the neediest households, while reducing categories of eligible populations enough to make entitlement funding financially feasible. All four options for determining eligibility share a number of existing parameters from the status quo, namely:

- Only renters spending 30 percent or more of their gross adjusted household income are eligible (30 percent STIR);

- The income test will be based on Housing Income Limits, which is the minimum gross adjusted income needed to rent a suitable and appropriate private market unit for less than 30 percent of income. Income thresholds differ according to household size and characteristics. Calculation of the province-wide local income cut-offs is based on estimated provincial median rent from the combined SHS 2009 and SHS 2008 datasets (see Table VI below). Existing exemptions for income sources will remain in force;
- Applicants must meet the existing residency requirements; and
- Applicants must not have $8,000 or more of non-exempted assets.[11]

Table 5.1. Maximum Monthly Median Rent and Housing Income Limit for Eligibility Criteria Options

	Monthly Median Rent (2009 $)	Equivalent maximum income for households who qualify for the room type (Core Need Income Thresholds) (2009 $)
Bachelor	687.5	27500
1 bedroom	837.5	33500
2 bedroom	975	39000
3 bedroom	1075	43000
4 bedroom	1212.5	48500
+5 bedroom	1400	56000

Note: Based on author's calculation. Please see Appendix A for calculation of median rent and Core Need Income Thresholds

5.1.1. Eligibility Option 1: Status Quo Minus

The first eligibility option is the status quo-minus: the 30 percent STIR in conjunction with the Core Need Income Thresholds, as well as the remaining parameters from Section 5.2, with the additional caveat that is it excludes two categories of households. The first is households already paying subsidized rent due to provincial, federal or municipal housing assistances; the second is single, full-time post secondary students who have no dependents. Excluding the former is justified on horizontal equity

[11] The decision to retain this criterion is due more to the limitations of my methodology and data sample, which did not contain information on the asset levels of respondents. Poignantly, the DTRS has a rather onerous and low asset cut off point for determining eligibility relative to housing allowances in other provinces ($8,000 compared to $200,000 in BC's Rental Assistance Program). This low amount would seem to be a palpable disincentive for beneficial asset accumulation and savings.

grounds while the latter typically only have low-incomes in the short term. Furthermore, post-secondary students are eligible for student loans and are treated favorably in the tax system. Provincial welfare recipients (Alberta Works and AISH) will still be eligible for the DTRS despite the presence of a shelter component in their benefits. To operationalize this, I excluded from my sample childless single households under the age of 25 who were not working full time, as proxies for full-time post-secondary students. Given these parameters, the targeted population of this eligibility option is essentially any household (except single, full-time post-secondary students) who is experiencing affordability problems (e.g. paying more than 30 percent of income on shelter) and not receiving any form of housing assistances. An estimated 71,173 Albertan households in 2009 met this eligibility criterion.

5.1.2. Eligibility Option 2 (Working Age Households)

Eligibility Option 2 includes includes all the parameters of Option 1 with the addition that it excludes senior households (defined as aged 65 and above). The justification for this exclusion is the fact that seniors experience significantly lower poverty rates (1.1 percent) than working age households (7.9 percent), as measured according to the LICO measure in 2011 (Statistics Canada, 2015).[12] Furthermore, low-income seniors are eligible for federal and provincial cash transfers (e.g. Old Age Security, Guaranteed Income Supplement, and the Alberta Seniors Benefit[13]). Targeted population of this eligibility option is any working age household experiencing affordability problems who are not receiving any form of housing assistance save welfare. Under this eligibility option, I estimated that 60,977 households qualified for the DTRS in 2009.

[12] In fact, Alberta tied with New Brunswick for having the lowest seniors' poverty rate (LICO) in 2011 (Statistics Canada, 2015).

[13] The Alberta Seniors Benefit (ASB) is a monthly cash transfer paid to a single Albertan senior with an annual income of $26,400 or less, or senior couples with incomes of $43,000 or less. The maximum monthly benefit for single seniors, couple seniors, and seniors living in assisted living facilities are $280, $420 and $880 respectively (Government of Alberta, 2015).

5.1.3. Eligibility Option 3 (Employed Working Age Households - Workfare)

This option shares the same criteria with Eligibility Option Two but further restricts eligibility to households whose gross adjusted income include some amount from employment earnings. Excluding households with zero earnings is justified on two grounds. Firstly, provincial welfare recipients who have zero earnings are receiving the full portion of their entitled welfare benefits, including the maximum shelter component. Excluding this category of households could be justified on horizontal equity grounds. The second justification is based on workfare and concerns about the self-sufficiency of housing assistance recipients. Notwithstanding the concerns about Marginal Effective Tax Rate (METRs), requiring housing assistance recipients to 'work for their benefits' is one way to ensure recipients are not stuck in poverty traps characterized by total withdrawal from or inactivity in the labour market. 48,534 households in the SHS 2009 dataset met this eligibility criterion in 2009.

5.1.4. Eligibility Option 4 (Working Age Families with Dependents)

Eligibility option 4 builds from option 2 with the additional caveat that households must have at least one dependent child (defined as age 17 and below). Excluding childless households can be defended on vertical equity grounds given that large households with children are likely to experience the greatest need for housing assistance. This options shares the same criteria with the BC's Rental Assistance Program except the latter's total exclusion of provincial welfare recipients.[14] An estimated 22,311 households would have qualified for the DTRS in 2009 according to this eligibility criteria.

[14] Sample limitations of the SHS 2009 dataset precludes modelling an option that excludes provincial welfare assistance recipients. This option would have shared the same eligibility rules as BC's Rental Assistance Program. Beyond data limitations, including such an option would present other problems given that a vast majority, or 74 percent of DTRS recipients in 20XX were receiving some amount of provincial welfare.

Table 5.2. Summary of Eligibility Options

	Target group	Estimated number of qualifying households	Shared Criteria
Option 1	Status Quo plus: Households experiencing affordability problems	71,173	Gross adjusted household income less than the corresponding Core Need Income Threshold (see Table X) Pay more than 30 percent of gross adjusted household income on private market rent Have less than $8,000 in non-exempted assets Meet residency requirements Currently not paying subsidized rent as a tenant in publicly owned or operated social housing (federal, provincial or municipal) Must not be a full-time postsecondary student (exceptions if the student has dependents)
Option 2	Working age households experiencing affordability problems	60,957	
Option 3	Working age households in the paid labour employment who are experiencing affordability problems	48,534	
Option 4	Working age households with at least one child dependent who are experiencing affordability problems	22,311	

5.2. Options for Calculating Benefits

For each of the four aforementioned eligibility options, I calculated their entitled subsidy using three different benefit formulas, including the status quo. For each formula, I assumed a constant 60 percent participation rate across all household types, which is admittedly an oversimplification. Two of the benefit formulas considered in this study are variations of the partial affordability gap formula that have the potential to increase targeting of benefit to the neediest group while increasing benefit coverage, thus improving both vertical and horizontal equity. In order to calculate household benefits under each formula, a number of assumptions were taken:

- **30 percent STIR**: Notwithstanding the methodological deficiencies of the 30 percent Shelter-Cost-to-Income (STIR) ratio identified by Hulchanski (1992) and Croll (2015), the affordability standard is retained because it is administratively simple to operate and it identifies the households with the largest housing expenditures relative to their income.
- **Maximum rent subject to a subsidy:** While rent maximums for room type differ from community to community in the actual DTRS, the paucity of community-specific data in the SHS 2009 precludes such customization in this study. Instead, the maximum rents subject to a subsidy used in this study are based on the provincial median rent for

size of a unit needed to suitably house a family the size of their household (please refer to Table X on Page X).

- **Maximum subsidy:** Maximum subsidies also differ from HMB to HMB, but for the sake of modelling, a maximum of $550 per month is assumed. This was the maximum subsidy set by the Capital Region Housing Corporation in Edmonton until it was reduced to $500 in 2012 due to decreases in funding.
- **Suitable and adequate dwelling units:** The assumptions about the size of the unit that a household should live in is based on CHMC's definition of what constitutes suitable housing (please refer to Table 7 below). It is further assumed that the units rented under the DTRS meet minimum standards.
- **No increase in housing expenditures:** It is assumed that recipients will use the DTRS to offset non-housing expenditures as opposed to moving to higher quality and hence more expensive rental units. In other words, the study sets the income elasticity for the demand of housing services to be zero. The calculation of the household's subsidy is therefore based on their existing rent.

Table 5.3. National Occupancy Standards

One bedroom is assigned for each:	Cohabiting adult couple; Each lone parent; Unattached household member 18 years of age and over; Same-sex pair of children under the age of 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 room

* A household of one individual is assigned a bachelor unit (i.e. a unit with no bedroom).
Source: Canada Mortgage and Housing Corporation (2015).

5.2.1. Benefit Formula Option 1 (Full Affordability Gap and Status Quo)

Option 1 is the incumbent benefit formula for calculating the Direct-to-Tenant Rent Supplement and is represented below:

$$S = R - 0.3Y \text{ if } S \leq \$550 \text{ and } R < R_{max}$$

$$S = R_{max} - 0.3Y \text{ if } S \leq \$550 \text{ and } R \geq R_{max}$$

To reiterate, the formula subsidizes the full difference between the recipients' actual rent up to a maximum and 30 percent of their household's gross adjusted income.

5.2.2. Benefit Formula Option 2 (Partial Affordability Gap)

This benefit formula subsidizes 75 percent of the difference between the household's actual market rent up to a maximum and 30 percent of their gross adjusted income. The formula for this option is:

$$S = 0.75(R - 0.3Y) \text{ if } S \leq \$550 \text{ and } R < R_{max}$$

$$S = 0.75(R_{max} - 0.3Y) \text{ if } S \leq \$550 \text{ and } R \geq R_{max}$$

Subsidizing a portion of the affordability gap reduces the payment standard (the benefit) for all household types but otherwise allows for a higher number of recipients to be subsidized given a fixed budget. This is a trade-off between generosity and benefit coverage.

5.2.3. Benefit Formula Option 3 (Partial Variable Affordability Gap)

The percentage of the affordability gap subsidized in option 3 is a function of household size. Specifically, the benefit formula is:

$$S = \lambda(R - 0.3Y) \text{ if } S \leq \$550 \text{ and } R < R_{max}$$

$$S = \lambda(R_{max} - 0.3Y) \text{ if } S \leq \$550 \text{ and } R \geq R_{max}$$

Where λ is:

- 0.6 for a single household;
- 0.675 for a household of two people;
- 0.75 for a household of three people;
- 0.825 for a household of four persons; and
- 0.9 for a household of five persons or more.

This variable affordability gap rate accounts for the needs of families of different sizes and compositions by progressively increasing their after-rent income according to the number of family members. This options improves both horizontal and vertical equity.

5.3. Policy Option Sets

The eligibility and benefit formula options together constitute the policy option sets. Table 10 shows the eligible and recipients households for each eligibility criteria option, assuming a uniform 60 percent participation rate. For qualifying households under each eligibility criteria option, the Direct-to-Tenant Rent Subsidy is calculated according to the three benefit formulas. Table X also shows the average monthly benefit and total subsidy cost to government of each benefit formula option.

Table 5.4. Program Outcomes under the 16 Policy Option Sets

Eligibility option	Eligible households	Recipient households	Benefit formula	Average monthly benefit ($)	Total subsidy cost ($)
1	71,173	42,704	1	254.53	126,008,879
			2	191.47	94,793,847
			3	181.91	90,059,799
2	60,957	36,568	1	240.92	105,772,620
			2	184.14	80,844,165
			3	183.77	80,682,553
3	48,354	29,120	1	248.40	86,803,704
			2	191.57	66,941,737
			3	188.61	65,909,243
4	22,311	13,387	1	279.97	44,974,266
			2	221.43	35,569,659
			3	247.96	39,832,531

Chapter 6.

Criteria and Measures

6.1. Introduction

As mentioned in Chapter 5, the primary goal of the policy options is to design an entitlement-based housing allowance that retains the DTRS's original objective of supporting households in need of affordable and suitable private housing while controlling program costs and improving equity. To objectively assess the policy option sets presented in Chapter 5, a set of criteria and measures that pays heed to both societal and governmental outcomes will be utilized.

Table 6.1. Criteria and Measures for Analyzing Policy Option Sets

	Description of Criteria	*Measures*	*Score*
Societal outcomes			
Human development (1)	**Benefit adequacy:** Average post-subsidy rental cost to income ratio (0.5)	>3.5 STIR	3 (high)
		3.5 to 4.0 STIR	2 (medium)
		<4.0 STIR	1 (low)
	Benefit reach: The number of eligible households (0.5)	≤63,982 households	3 (high)
		36,561 to 63,981 households	2 (medium)
		≥63,981	1 (low)
Horizontal Equity (1)	**Benefit coverage:** Percentage of eligible households receiving the DTRS assuming program budget is fixed at 2009 level (0.5)	≤40%	3 (high)
		20 to 39%	2 (medium)
		≤19%	1 (low)
	Working age: Percentage of policy option set recipients are working age, single households (0.5)	≤30%	3 (high)
		10 to 29%	2 (medium)
		≤9%	1 (low)
Vertical Equity (1)	**Benefit progressivity:** Does the ability of the benefit formula to distinguish between households based on relative need (0.5)	Yes	3 (high)
		No	1 (low)
	Benefit targeting: Proportion of eligible households belonging to the lowest income decile (0.5)	≤45%	3 (high)
		43 to 44%	2 (medium)
		≤42%	1 (low)

Government outcomes			
Affordability (1)	**Government costs**: total subsidy costs (1)	>$40 million	3 (high)
		$40 million to $80 million	2 (medium)
		<$80 million	1 (low)
Behavioral incentives (1)	**Housing consumption (moral hazard)**: Percentage of increased housing consumption that the policy option set subsidizes at the margin (0.5)	>75%	3 (high)
		75 to 99%	2 (medium)
		100%	1 (low)
	Work incentives: Average benefit clawback rate (0.5)	≤25%	3 (high)
		26 to 29%	2 (medium)
		≤30%	1 (low)

6.2. Societal Outcomes

6.2.1. Human Development

The primary objective of the Direct-to-Tenant Rent Supplement is to allow low-income households to afford suitable private market dwelling. As stated in the background, affordability or the inability of households to find suitable housing at less than 30 percent of their gross household income is the primary policy problem. Spending a disproportionate amount of income on shelter can be described as being detrimental to human development as it crowds out households' consumption on other necessities, including food, education and leisure. More intuitively along Maslow's Hierarchy of Needs, spending a disproportionate amount on the base necessity of shelter also inhibits the household's fulfillment of higher needs.

Benefit generosity in terms of rental cost to income ratios is therefore one way to assess the efficacy of the policy options in terms of meeting the DTRS' program objectives. Assuming the household satisfies CHMC's suitability and adequateness criteria, a generous housing allowance is one that eliminates the household's Core Housing Need status by reducing their rental cost to income ratio to less than or a little over 30 percent. A less generous housing allowance reduces the severity of the household's affordability problem but does not satisfy CHMC's definition of the Shelter Cost to Income Ratio (STIR)

falling below 30 percent. To assess the generosity of my policy option sets, I will be using the average ratio of post-subsidy rent (the rent paid by the recipient to the landlord) to income. A ratio of of 3.5 or less is considered a generous policy option set and is allocated a 'high' rating whereas a ratio of more than 3.5 to 4.0 less generous and is therefore given a 'medium' rating. Anything above 4.0 has a low rating.

A second measure of the human development potential of my policy option sets is the number of eligible households. All things held equal, a housing allowance that is accessible to a larger segment of the population has a greater potential to uplift the socio-economic outcomes of more households experiencing Core Housing Need than one with stricter eligibility criteria. Or in other words, assuming no budget constraint, a policymaker would prefer that the housing allowance be accessed by needier recipients. Given 137,485 households experiencing Core Housing Need in Alberta in 2009, of which an estimated 91,403 met the existing DTRS eligibility criteria, any policy option that is accessible by 70 percent of the latter number of households has a 'high' rating. 'Medium' policy sets have between 40 to 69 percent of qualifying households under the old eligibility criteria.

6.2.2. Horizontal Equity

The horizontal equity criterion evaluates the policy option set's ability to offer the same assistance to households that are the same with respect to characteristics of interest to taxpayers. Supply-side programs including social housing score poorly in this regard due to their long waitlists. The non-entitlement nature of the DTRS only replicates this problem. However, there is an inherent trade off between benefit adequacy and program coverage. Designing an entitlement-based housing allowance with fiscal constraints in mind requires some reduction in the benefit standard. With this constraint, I evaluated my policy option sets by estimating the proportion of households meeting the option's eligibility criteria who are receiving the DTRS if the subsidy budget was fixed at its 2009 level of $31 million. This was operationalized by dividing the $31 million with the calculated average annual subsidy of each policy option set. Given that 60 percent is the average participation of many means-tested programs, a policy option that has a rating of 40 percent or higher is apportioned a 'high' rating, while scores of 'medium' and 'low' are given to percentages of 20 to 39 percent and under 20 percent respectively.

An alternative measure of horizontal equity is the policy option's ability to include working age, single households. As was elaborated in Chapter 4.4, the needs-based prioritization system of non-entitlement based housing programs tends to neglect single households, who are already disadvantaged in the tax and transfer system relative to families with dependents. Extending some form of housing assistances to singles is also imperative because unattached working age adults in Alberta have a very high incidence of poverty (LICO) at 27.2 percent compared to only 3.9 percent of counterparts who are members of economic families in 2011 (Statistics Canada, 2015). A housing program that has at least 30 percent of recipients hailing from single, unattached households is given a 'high' score. 'Medium' programs have between 10 to 29 percent while 'low' scores are given to policy options with a percentage of less than 10 percent.

6.2.3. Vertical Equity

Vertical equity is the other face of the coin and my policy option set will be evaluated in terms of its capacity to make fair and equitable distinction between households based on their relative need. Larger households have more expenditure priorities vis-à-vis single/smaller households and the benefit formula should take this disparity into account. If the formula makes a distinction, it is given a high score. Low scores are recorded if the benefit is blind to the composition or size of the family. Intermediate scores are not available for this measure.

Alternatively, vertical equity can be assessed from the distribution of eligible households according to income deciles. Whereas means-testing ensures that only low-income households qualify for all the policy options, I used small variances in terms of the proportion of eligible households belonging to the lowest income decile as the measure to distinguish between the options. An equitable eligibility criteria option scores highly if 50 percent or more of its qualifying households are from the lowest income decile (D1). Conversely, if less than 45 percent of qualifying households belong to D1, the option scores poorly. Anything in between scores moderately.

6.3. Government Outcomes

6.3.1. Affordability

The Albertan government is in an unprecedented fiscal crisis due to the fall in hydrocarbon prices. Non-renewable resource revenue for the 2015-16 is forecast to be $6.2 billion or 69 percent lower than in 2014-15, while corporate income taxes (CIT) is projected to be $1.5 billion less than the previous fiscal year despite increases in the effective CIT rate. As a result, the provincial government is expected to be running four consecutive years of budget deficits, totalling approximately $18 billion. Using the $31 million DTRS subsidy cost and 2009 total provincial government program expense budget of $ 36 billion as a benchmark, any policy option set that costs less than $40 million has a high score. Options costing between $40 and $80 million has a medium score and anything costing more than $80 million is scored poorly.

6.3.2. Moral hazard

The fourth criteria in Olsen's (2005) prescribed framework for evaluating housing assistance programs concerns the cost effectiveness of the housing provided to recipients. While increasing the household's consumption of housing services is desirable up to a point, moral hazard concerns exist because recipients might be incentivized to consume housing that exceeds the HMB's minimum standard requirements, which drives up the cost of the program. The policy option set's susceptibility to the problem depends in part on the marginal subsidization rate, or the percentage of increased housing consumption that the program subsidizes at the margin. If the average marginal subsidization rate of the policy option is 1.0, it scores poorly. Average rates of 0.75 to 0.99 will be apportioned a medium score, whereas average rates of less than 0.75 will have a high score.

The interaction of the policy option sets with the tax and transfer system could also produce high marginal effective tax rates (METRs) that disincentivizes work effort. This is especially pertinent given that 74 percent of DTRS recipients were on welfare in 2009. On the flip side, high METRs enable generous and progressive benefits to low-income

households. Estimating the total METR is beyond the scope of this project, however they can be implicitly assessed through the DTRS clawback rate. Currently, DTRS recipients stand to lose 30 cents of DTRS benefits for every 1 dollar in additional earnings. With this benchmark in mind, policy option sets with average clawback rates of 0.3 fail to improve from the status quo and therefore score poorly. Average clawback rates of 0.25 or less are given a high rating while anything in between scores moderately.

Chapter 7.

Analysis of Policy Options

Using the criteria described on the previous chapter, I evaluated my policy option sets. High, medium and low scores would yield 3, 2 and 1 points respectively. These were then multiplied by the assigned weights of the measures to obtain the total scores. Table 7.1 on the next page summarizes the ratings of the policy option sets. Policy makers may allocate different weights. A number of shared weaknesses and strengths of the shared policy option sets should first be noted before evaluating in detail the individual policy option sets.

Benefit adequacy is higher in full affordability gap plans: As expected, recipients of policy option sets that subsidize the full percentage of the gap have the lowest post-subsidy rental cost to income ratio. Ratios for the partial gap plans are lower than full affordability gap plans, though not significantly so (between 4 to 5 percent), indicating that the reductions in benefit generosity might not be drastic enough to deter participation. This is somewhat less true of partial variable plans, where single, unattached households could stand to lose at least 40 percent of the value of their existing benefits.

Vertical equity is higher for partial variable plans relative to partial and full-affordability gap plans: Given that the latter two categories of benefit formula are blind to the size of the recipient household; they perpetuate the existing vertical inequities of the DTRS. In contrast, partial variable plans ensure that larger households have a higher post-rent income relative to smaller households.

The potential for moral hazard is higher in full affordability gap plans: The interaction of a 100 percent affordability gap and 30 percent contribution rate not only produces the highest average marginal tax rates for recipients, but could incite recipients to consume excessive housing services because the marginal cost of consuming costlier housing up to the rent maximum is zero. Conversely, the partial variable plans have the lowest

Table 7.1. Index of Policy Option Set Scores

Performance Criterion	Measures	Status quo minus			Working age adults			Working age adults in the labour force			Working age adults with dependents		
		Full	*Partial*	*Partial variable*	*Full*	*Partial*	*Partial variable*	*Full*	*Partial*	*Partial variable*	*Full*	*Partial*	Partial variable
Human development (1)	Benefit adequacy (0.5)	1.5	1	1	1.5	1	1	1.5	1	1	1.5	1	1
	Benefit reach (0.5)	1.5	1.5	1.5	1	1	1	1	1	1	0.5	0.5	0.5
Horizontal equity (1)	Benefit coverage (0.5)	0.5	1	1	0.5	1	1	1	1	1	1.5	1.5	1.5
	Working age (0.5)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.5	0.5	0.5
Vertical equity (1)	Benefit progressivity (0.5)	0.5	0.5	1.5	0.5	0.5	1.5	0.5	0.5	1.5	0.5	0.5	1.5
	Benefit targeting (0.5)	0.5	0.5	0.5	1.5	1.5	1.5	1.5	1.5	1.5	0.5	0.5	0.5
Affordability (1)	Government costs (1)	1	1	1	1	1	1	1	2	2	2	3	3
Behavioral incentives (1)	Housing consumption (0.5)	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1
	Work incentives	0.5	1.5	1.5	0.5	1.5	1.5	0.5	1.5	1.5	0.5	1.5	1.5
TOTAL POINTS		**8**	**9.5**	**11**	**10**	**10**	**11.5**	**8.5**	**10.5**	**12.5**	**8**	**12**	**11**

average marginal tax rates (22.5 percent) and lowest average percentage of increased housing consumption subsidized at the margin (between 70 and 73 percent), except in the case of policy option set 4 at 80 percent. This was due to the exclusion of single, unattached households.

7.1. Policy Option Sets in Eligibility Option 1 (Status Quo Plus)

Human development: With respect to benefit reach, the status quo plus eligibility option had the highest ratings of all the policy option sets. Approximately 71,173 households or 75 percent of the estimated households currently eligible for the DTRS will continue to meet the eligibility requirements of the status quo plus option. Measuring benefit adequacy in terms of post-subsidy shelter cost to income ratio, it is perhaps no surprise that using the full affordability gap method produces the most generous subsidy. Approximately 40,813 households would receive an annual benefit averaging at $3,086. This represents the highest number of recipient households and the highest average subsidy of all four policy option sets.

Horizontal Equity: Changing the DTRS to an entitlement program based on parameters that closely resemble the existing program would improve equity by extending benefits to single households who would otherwise not make the cut in the existing needs-based prioritization system. Approximately 34% of recipients would be single, working age adults.

However, there is a significant trade off between benefit generosity and horizontal equity as measured by the proportion of eligible households receiving the DTRS assuming a fixed subsidy budget of $31 million. Policy option sets that scored high on benefit adequacy and benefit reach had low performances in terms of horizontal equity. Combining status quo plus with a full affordability gap method produces the highest average subsidy of $3,086, but only 15 percent of the total eligible population could hypothetically be funded given a budget constraint of $31 million. Using the partial and partial affordability gap formulas did improve the policy option set's horizontal equity score to medium, but only 20 and 21 percent of the total eligible population would be funded.

Ultimately, the status quo plus' eligibility criteria is too broad and 'universal' to allow for the implementation of a cost-effective entitlement-based housing allowance.

Vertical equity: The relative 'universality' of the status quo plus eligibility option is also reflected in the lack of progressivity in the distribution of recipient households by income deciles. Only 41 percent of eligible households belong the first income decile (D1), which is the lowest of the four eligibility options. One potential reason is the extension of eligibility to seniors households, who have lower poverty rates than working age counterparts. It is worth emphasizing that for the purpose of means testing, many major sources of income for seniors are exempted, including Old Age Security (OAS), the Guaranteed Income Supplement (GIS), Alberta Seniors Benefit, and monies from Registered Retirement Savings Plans (RRSPs) and Registered Retirement Income Funds (RRIFs). Excluding these categories of income artificially inflates the number of qualifying seniors households.

Affordability: Another significant weakness of this policy option set irrespective of the way benefits are calculated is its high budgetary cost. The total annual subsidy costs of implementing a housing allowance using the full, partial, and partial affordability gap methods are approximately $126 million, $94 million and $90 million respectively, which is over my benchmark of $80 million. This exercise did however illustrate the cost-savings that could be achieved by using benefit formulas that only subsidize a portion of the affordability gap, with the partial variable approach cheaper relative to the static partial benefit formula.

Table 7.2. Summary of Criteria and Measure Values and Scores for Policy Option Sets in Eligibility Option 1

Criterion (Weight)	***Measures (Weight)***	**Values**			**Scores**		
		Full	Partial	Partial Variable	Full	Partial	Partial variable
Human development (1)	*Benefit adequacy (0.5)*	0.35	0.39	0.4	1.5	1	1
	Benefit reach (0.5)	68,670	68,670	68,670	1.5	1.5	1.5

Horizontal Equity (1)	*Percentage covered assuming budget is fixed (0.5)*	15%	20%	21%	0.5	1	1
	Percentage single working age 0.5)	34%	34%	34%	1.5	1.5	1.5
Vertical Equity (1)	*Variation between household types (0.5)*	No	No	Yes	0.5	0.5	1.5
	Percentage lowest income decile (0.5)	41%	41%	41%	0.5	0.5	0.5
Affordability (1)	*Subsidy cost (annual cost $million) (1)*	$126	$95	$90	1	1	1
Moral hazard (1)	*Housing consumption (0.5)*	1.0	0.75	0.7	0.5	1	1.5
	METR (0.5)	0.3	0.225	0.21	0.5	1.5	1.5
TOTAL					8.5	9.5	11.0

7.2. Policy Option Sets in Eligibility Option 2 (Working Age Adults)

Human development: The distinguishing characteristic of this policy option set is its exclusion of senior households and restriction of eligibility to working age adults. Beyond the rationales provided in Chapter 7.2 on the lower poverty rates experienced by seniors and the preponderance of cash transfers provided by both the provincial and federal governments, two additional justifications can be discerned. The first is that many seniors requiring housing assistance tend to have mobility/health issues that necessitate placement in supportive housing or long term care facility. While the housing allowance could theoretically be used to offset monthly fees, the combination of rent maximums and maximum monthly subsidies means that their entitled benefits would be too small to make

any significant reductions in their post-subsidy shelter cost to income ratio. Rather, seniors households who are unable to live independently should be assisted through more targeted programs, including supply side capital programs [add footnote]. The second reason is the proportion of seniors households who are renters is smaller than working age adults. In other words, seniors tend to be homeowners who have paid off all or most of their mortgages. The primary policy problem facing such households is their 'cash poor but asset rich' status when faced with the high costs of in-home or external supportive living. More appropriate policy prescriptions are reverse mortgages, deferred property taxes or otherwise more generous cash transfers for seniors.

The eligibility criteria option reduced the number of eligible households in my sample size to 60,977 households, or 7,693 below the status quo plus. These were households where the age of the reference person was 65 years or above. Overall, this garnered a medium score for the *benefit reach* criterion as nearly 67 percent of the DTRS's existing eligible households would still qualify for the program. Benefit adequacy would depend on the type of benefit formula chosen, with the full affordability gap method scoring well with a post-subsidy STIR of 0.34. Both the partial and partial variable methods of calculating the subsidy produced a post-subsidy STIR of 0.38, which for the purpose of our criterion is of an intermediate quality.

Horizontal Equity: This policy option continues to score well in terms of extending benefits to single, working age households. With the exclusion of seniors households, it is perhaps expected that the share of working age, single households will be higher (36 percent versus 34 percent for status quo plus). Ultimately, reducing eligibility to working age adults was not sufficient to increase the horizontal equity scores of the policy option set. Assuming a fixed program budget of $31 million, only 23 percent of eligible households could receive the DTRS if the subsidy was calculated using the partial or partial variable affordability gap approaches. This was even lower (18 percent) for the status quo benefit formula.

Vertical Equity: Interestingly, this policy option had high vertical equity scores as indicated by relatively high percentage of eligible households belonging to the lowest income decile. At 46 percent, this was a 5 percent improvement from the status quo plus option and the

largest proportion of the four policy option sets. Again, the reason is the relatively lower proportion of seniors experiencing poverty vis-a-vis working age adults. Similar to the first eligibility option, the policy option set's ability to equitably vary benefits according to the composition of the household will depend on the benefit formula chosen.

Affordability: Concomitantly, implementing an entitlement based housing allowance based on this eligibility criterion will continue to exert undue fiscal pressure on the provincial government. All three of the benefit formulas modelled produced total annual subsidy costs of over $80 million. Similar to Policy Option Set 1, the total cost of the partial variable policy is cheaper than the static 75 percent affordability gap policy, indicating that cross subsidization between households of different sizes could increase the participation rates of the neediest households while controlling program costs.

Table 7.3. Summary of Criteria and Measure Values and Scores for Policy Option Sets in Eligibility Option 2

Criterion (Weight)	***Measures (Weight)***	**Values**			**Scores**		
		Full	Partial	Partial Variable	Full	Partial	Partial variable
Human development (1)	*Benefit adequacy (0.5)*	0.34	0.38	0.38	1.5	1	1
	Benefit reach (0.5)	60,977	60,977	60,977	1	1	1
Horizontal Equity (1)	*Percentage covered assuming budget is fixed (0.5)*	18%	23%	23%	0.5	1	1
	Percentage single working age (0.5)	36%	36%	36%	1.5	1.5	1.5
Vertical Equity (1)	*Variation between household types (0.5)*	No	No	Yes	0.5	0.5	1.5
	Percentage lowest income decile (0.5)	46%	46%	46%	1.5	1.5	1.5
Affordability (1)	*Subsidy cost (annual cost $millions)(1)*	$106	$81	$81	1	1	1

Moral hazard (1)	*Housing consumption (0.5)*	1.0	0.75	0.72	0.5	1	1.5
	METR (0.5)	0.3	0.225	0.21	0.5	1.5	1.5
TOTAL					10.0	10.0	11.5

7.3. Policy Option Sets in Eligibility Option 3 (Employed Working Age Adults)

Human development: To be eligible for this policy option set, some or all of the working age household's gross household income must come from legitimate employment sources. This excluded approximately 12,443 working age households who would otherwise qualify for Policy Option Set 2. A total of 48,534 households were eligible for the DTRS, which is roughly 53 percent of the estimated households in my sample currently satisfying the incumbent eligibility requirements of the DTRS, thus giving it a 'medium' score. Benefit adequacy as calculated by the post-subsidy STIR varies according to the benefit formula utilized, ranging from 0.34 (high score) in the full affordability gap method to 0.38 (medium score) for both the partial and partial variable affordability gap method.

Horizontal Equity: The exclusion from eligibility of households relying entirely on the tax and transfer system had noticeable improvements on the horizontal equity criterion scores. Depending on the benefit formula chosen, up to 28 percent of eligible recipients could be assisted assuming the program budget was fixed at $31 million. This is significantly higher than the status quo of only 7.3 percent of estimated eligible households in 2009 receiving the DTRS. The policy option also performs reasonably well in extending eligibility to single households, which at 30 percent is somewhat lower than the previous two eligibility options. There was also a noticeable drop in the proportion of eligible households who are unattached singles relative to Policy Option 2 (30 percent versus 36 percent), which indicates that unattached singles are overrepresented among the non-unemployed, whether 'worthy' or 'unworthy'.

Vertical Equity: 51 percent of eligible households belong to the lowest income decile, compared to 54 percent in the previous eligibility option. Overall, while the policy option seems to perform reasonably well in the equity criteria, it penalizes families who are

working under the table, or are self-employed with little documentation to prove their eligibility because they fail to meet the deadline for tax-filling. The slight reduction in the proportion of lowest income decile families from policy option set 2 to 3 from 46 to 45 percent seems also to indicate that some of the disqualified households were of the poorest, and thus neediest families.

There was however a slight drop in the proportion of eligible households belonging to the lowest income decile from 45 in policy option set 2 to 44 percent seems to indicate that some of the poorest households have been excluded. While the imperative to increase self-sufficiency of DTRS recipient through workfare is a worthy criterion, it should be balanced against the needs and interests of the hard-to-work.

Affordability: This policy option set also performed reasonably well in terms of the affordability criterion. Extending housing assistance to approximately to 29,120 households using the partial or partial variable would cost almost $67 million and $66 million respectively. Note that this amount is only slightly more than the combined budgeted $64 million for both the Direct-to-Tenant and Private Landlord Rent Supplements in 2009 that only assisted roughly 12,000 households in the same fiscal year. Conversely, applying the full affordability gap formula would yield a total subsidy costs of over $80 million, thus performing poorly in the affordability criterion.

Moral hazard: One of the primary impetus of this policy option set is to enhance self-sufficiency of recipients, or to otherwise ensure that receipt of the DTRS does not motivate recipients to leave the labour force entirely. This has been taken into account when assessing the average clawback rates of the option sets. Similar to our previous analyses, the full affordability gap method produced the highest average benefit clawback rate of 30 percent. This rate is reduced to 0.225 and 0.22 for the partial and partial variable methods. While not significantly different than the previous two eligibility options, this policy option set should nonetheless be scored high due to the unmovable qualification that households participate in paid labour employment to be eligible at both the initial application and subsequent benefit renewal stages.

Table 7.4. Summary of Criteria and Measure Values and Scores for Policy Option Set in Eligibility Option 3

Criterion (Weight)	*Measures (Weight)*	Values			Scores		
		Full	Partial	Partial Variable	Full	Partial	Partial variable
Human development (1)	*Benefit adequacy (0.5)*	0.34	0.38	0.38	1.5	1	1
	Benefit reach (0.5)	48,534	48,534	48,534	1	1	1
Horizontal Equity (1)	*Percentage covered assuming budget is fixed (0.5)*	21%	27%	28%	1	1	1
	Percentage single working age (0.5)	30%	30%	30%	1.5	1.5	1.5
Vertical Equity (1)	*Variation between household types (0.5)*	No	No	Yes	0.5	0.5	1.5
	Percentage lowest income decile (0.5)	45%	45%	45%	1.5	1.5	1.5
Affordability (1)	*Subsidy cost (annual cost $millions) (1)*	$87	$67	$66	1	2	2
Moral hazard (1)	*Housing consumption (0.5)*	1.0	0.75	0.73	0.5	1	1.5
	METR (0.5)	0.3	0.225	0.21	0.5	1.5	1.5
TOTAL					9.0	11.0	12.5

7.4. Policy Option Set in Eligibility Option 4 (Working age Households with Dependents)

Human development: Option Set 4 is different than Options 2 and 3 in that only working age families with dependents between the ages of 0 and 18 are eligible. This drastically reduces the total number of qualifying households to 22,311, or a mere 24 percent of the estimated 91,403 households in 2009 who satisfied the DTRS' eligibility criteria. As such, the policy option was given a 'low' score.

Horizontal and vertical Equity: As expected, the drastic reduction in the number of eligible households facilitated a high benefit coverage irrespective of the benefit formula chosen. Again assuming a fixed budget of $31 million, an estimated 53 percent of eligible households could be assisted when calculating benefits according to a 75 percent partial affordability gap formula. This is reduced to 47 percent when utilizing a partial variable benefit formula, due to the higher average annual benefit. It is worth mentioning that for Policy Option Sets 1 to 3, the opposite relationship was deduced with the partial affordability gap plans cheaper than their partial variable affordability gap counterparts. However, the partial variable gap method is more vertically equitable, and has a higher amount of points.

Nevertheless, this option set also scored poorly in one measure of horizontal equity as it perpetuates and exacerbates the inequities faced by working age, single households in the existing needs-based prioritization system as well as the general tax and transfer framework. Since single or couple households with no dependents are eligible, the option was given a low score. The proportion of eligible households belonging to the lowest income decile is lowest of all the policy options. This however corroborates with the fact that unattached individuals under the age of 65 had significantly higher rates of poverty than counterparts who are members of economic families.

Affordability: Consequences of a highly restrictive eligibility criteria, this option set is able to achieve a fairly horizontally equitable outcome at an affordable price. The total subsidy cost of a partial affordability gap plan was only $36 million, $5 million more than the DTRS' 2009 budgeted subsidy costs. Adopting a partial variable housing allowance is

more equitable but would costs an additional $4 million to fund the same amount of recipients.

Table 7.5. Summary of Criteria and Measure Values and Scores for Policy Option Sets in Eligibility Option 4

Criterion (weight)	***Measures (weight)***	**Values**			**Scores**		
		Full	Partial	Partial Variable	Full	Partial	Partial variable
Human development (1)	*Benefit adequacy (0.5)*	0.34	0.39	0.36	1.5	1	1
	Benefit reach (0.5)	22,311	22,311	22,311	0.5	0.5	0.5
Horizontal Equity (1)	*Percentage covered assuming budget is fixed (0.5)*	41%	53%	47%	1.5	1.5	1.5
	Percentage single working age (0.5)	0%	0%	0%	0.5	0.5	0.5
Vertical Equity (1)	*Variation between household types (0.5)*	No	No	Yes	0.5	0.5	1.5
	Percentage lowest income decile (0.5)	42%	42%	42%	0.5	0.5	0.5
Affordability (1)	*Subsidy cost (annual cost $millions) (1)*	$45	$36	$40	2	3	3
Moral hazard (1)	*Housing consumption (0.5)*	1.0	0.75	0.8	0.5	1	1
	METR (0.5)	0.3	0.225	0.24	0.5	1.5	1.5
TOTAL					8	12	11

Chapter 8.

Recommendation and Strategy for Implementation

It is recommended that the existing design of the Direct-to-Tenant Rent Supplement be reformed on two dimensions. First, eligibility for the program should be restricted to working age (15 to 64) only, renter households whose annual household income includes some employment earnings and who are not currently paying a subsidized rent due to participation in either municipal, provincial and federal housing assistance programs. This will entail denying eligibility to four household types who are are currently eligible and drawing DTRS benefits, namely:

- Senior households (defined as those aged 65 and above);
- Residents of publicly-owned or operated social housing, as well private market dwellings charging subsidized rent;
- Persons not participating in paid employment and/or drawing the full portion of their Alberta Works and/or AISH benefits; and
- Full-time post-secondary students who are unattached and have no dependents.

Restricting the DTRS' eligibility criteria has the effect of reducing the estimated total number of eligible Albertan households who qualify for the program in 2009 from 91,403 to 48,534 households, a reduction of nearly 47 percent of originally qualifying households. The DTRS will be further promulgated as an entitlement program, which accepts and funds applications on a first-come-first-serve basis. Changing this nature of housing benefits will involve amendments to the *Rent Supplement Regulation.*

The second dimension of the DTRS that will be reformed is the benefit formula. The current formula subsidizes 100 percent of the gap between the recipient's actual market rent, up to the local HMB's maximum, and 30 percent of the household's adjusted gross income. Going forward, the formula will be amended as follows:

$$S = \lambda(R - 0.3Y) \text{ if } S \leq S_{max} \text{ and } R < R_{max}$$

$$S = \lambda(R_{max} - 0.3Y) \text{ if } S \leq S_{max} \text{ and } R \geq R_{max}$$

Where S is the subsidy, S_{max} is the maximum subsidy as determined by individual HMBs, R is actual market, R_{max} is the local maximum subject to a subsidy as determined by HMBs, Y is gross adjusted household income, and λ is the affordability gap subsidized that differs according to the size of the household:

- 0.6 for a single household;
- 0.675 for a household of two people;
- 0.75 for a household of three people;
- 0.825 for a household of four persons; and
- 0.9 for a household of five persons or more.

Assuming a participation rate of 60 percent, it is estimated that 29,120 households will be recipients of the DTRS, with a total annual subsidy costs of almost $66 million ($2009). Based on these parameters, the values of other direct program outcomes of the reformed DTRS is listed in Table 8 below.

Table 8.1. Direct Program Outcomes of Recommended DTRS Design

Number of recipients	29,120
Total subsidy cost (annual)	$65,909,243
Distribution of recipients in terms of household type	Single household: 30% Couple-only: 11% Couple with single-child only: 21% Couple with other relatives or unrelated persons: 6% Single parents: 8% Other household with relative(s): 5% Other households with unrelated persons: 19%
Distribution of recipients in terms of household size	1-person: 23% 2-person: 32% 3-person: 13% 4-person: 21% 5-person: 9% 6-person or more: 0.9%
Distribution of recipients in terms of income deciles:	1st income decile (lowest): 45% 2nd income decile: 42% 3rd income decile: 11% 4th income decile: 2%
Average monthly subsidy (total)	$188.61
For 1-person household	$119.59

For 2-person family	$135.10
For 3-person family	$197.66
For 4-person family	$230.54
For 5-person family	$305.43
For families of 6 persons or more	$550.00
Average post-subsidy rental cost to income ratio (total)	0.38
For 1-person household	0.41
For 2-person family	0.39
For 3-person family	0.41
For 4-person family	0.36
For 5-person family	0.32
For families of 6 persons or more	0.40

8.1. Strategy for implementation

8.1.1. Delivery method

The implication*s* of entitlement funding on the existing delivery model of the DTRS should not be understated. Currently, the DTRS is administered by Housing Management Bodies (HMBs) that serve individual cities, towns or villages. This allows for local specificity in terms of the appropriate Housing Income Limit (HIL), maximum rents and maximum monthly subsidy. Alberta Seniors transfers an annual fixed grant to HMBs who then assessed applications for the DTRS, administer local waitlists, and dispenses benefits to top-ranking clients. Entitlement funding is potentially consequential because the earmarked grant might be insufficient to fund applicants on a 'first-come-first –serve' basis. Going forward, HMB's could be allowed to run a deficit on their DTRS 'account' with grants for the following fiscal year covering that amount. Further study is recommended on the merits of local delivery in the context of entitlement benefits, as opposed to centralized administrations.

8.1.2. Grandfathering of Existing DTRS Recipients

In accordance with the principles of administrative justice, existing DTRS recipients should receive the full share of their benefits under the existing benefit formula until they have left the program. Households on the DTRS waitlist (including those who would not qualify under the new eligibility criteria) will however draw benefits calculated under the new formula once funds are available. New applications to the DTRS program will however be assessed according to the new eligibility criteria. As such, the timetable for the implementation of the new DTRS should be staggered on a two to three-year fiscal year schedule, or until the final recipient of the old DTRS formula has left the program, whichever is later. Fixed amount of funds will be allocated to the new DTRS in increasing amounts (i.e. first year - $20 million, second year - $40 million), with applicants prioritized according to the existing needs-based prioritization system. At the end of the staggered implementation phase, all applicants will be funded on a 'first come, first serve' basis.

8.1.3. Potential Sources of Funding

A number of existing funds could be reallocated to support this proposed entitlement-based housing allowance. The most obvious is the existing $31 million budgeted for the subsidy cost of the existing Direct-to-Tenant Rent Supplement. These funds should be gradually transferred to the new DTRS formula in stages, until the last recipient of the old DTRS has 'graduated' from the program.

In addition, A few weaknesses of the Private Landlord Rent Supplement (herein abbreviated as PLRS) relative to the DTRS should be noted. First, beneficiaries of the former are not provided choice in their selection of units and must move in order to receive the benefit. Second, Rose (1980) argues, on the basis of similar provincial and federal programs, that it is not suitable or attractive to small informal landlords, but rather property managers with large development firms. This constrains the number of units that can be subsidized through the program. In addition, there is no incentive for landlords to give tenancy discounts to long-term tenants because of the assurance of continued subsidization should the tenant meet the eligibility requirements. Moreover, the program is subject to market variations, which could have positive and negative implications. To illustrate, landlords are incentivized to participate during times of over-supply because it

allows them to fill vacant units with program recipients. When the market is tight, landlords are motivated to opt out of the program (after the required 5-years) and raise rents (Sewell, 1994). Finally, the Private Landlord Supplement program funds less households than the DTRS despite being apportioned a larger budget envelop (Government of Alberta, 2015).

Both the DTRS and PLRS are targeted to the same clientele and share the same objective of supporting households in need of affordable and suitable housing by subsidizing rents in private sector rental accommodation. Both are based on Rent-Geared-to-Income formula of 30 percent. Further jurisdictional scans show that Alberta is one of the few jurisdictions in Canada (besides Saskatchewan) that have rent supplements delivered to both landlords and tenants. While beyond the scope of this paper, the PLRS is likely to share many program deficiencies with the DTRS, including horizontal and vertical equity issues. It is recommended that the Private Landlord Rent Supplement program be gradually eliminated and its funds transferred to the new entitlement DTRS. Taking the combined subsidy budget of the DTRS and the Private Landlord Rent Supplement will yield $64.5 million, which is only $1.5 million less than the estimated $66 million of the proposed entitlement-based housing allowance. The remaining funds could be sourced from unused federal funds transferred from cost-shared housing programs that will be allowed by the provincial government's signing of the Social Housing Agreement. Keeping in mind the fiscal constraints facing the province, this recommendation allows the province to provide more housing assistances to needy households without a need for higher expenditures or taxes.

Chapter 9.

Conclusion and Future Research

This report evaluated the Government of Alberta's Direct to Tenant Rent Supplement (DTRS) and propose alternative eligibility criteria and benefit formula for an entitlement-based housing allowance options. It was uncovered that the DTRS had significant horizontal and vertical equity problems. However, the DTRS remains the preferred avenue to expand housing assistance in Alberta because demand-side assistances are more cost effective and equitable relative to supply side programs like social housing and capital programs. My study modelled the program outcomes from the interaction of four different eligibility criteria and three benefit formula options of a hypothetical entitlement housing allowance, and then assessed them using a set of criteria and measures. It is recommended that the provincial government gradually restrict eligibility for the DTRS to working age adults with some source of earnings and who are not currently paying subsidized rent due to participation in provincial, federal or municipal housing programs. In addition, benefits should be calculated using a partial variable affordability gap method that apportions a higher benefit for larger households. This policy option set was shown to improve horizontal and vertical equity. This new entitlement benefit will not necessitate new revenue or expenditure, but would be implemented through the reallocation of current housing program expenditure.

Alberta Seniors staff has corresponded that no formal evaluation of the Direct-to-Tenant Rent Supplement was completed since the program was implemented in 2008. The paucity of administrative data was identified as the main barrier precluding such a formal analysis. As mentioned in Part 1, the Housing Management Bodies are responsible for accessing applications and delivering the benefits. Data at the individual level on the characteristic of recipients, their market rents before and after the allowance, their benefit levels, and other associated information is collected and stored at the individual HMB level. Summary statistics on the aforementioned recipient variables is submitted by the HMBs to Alberta Seniors in the January of each fiscal year as part of an annual departmental annual performance reporting process. These are used by the Department to access and determine baselines for annual conditional grants to the HMBs in support

of governmental social and affordable housing programs, including the DTRS. No information was provided on the procedure regarding the HMB's storage and future use of the program microdata.

Going forward, a formal evaluation of the DTRS would require the department to repossess the microdata from individual HMBs, as well as collect new types of information to determine the behavioral responses of recipients. The formal evaluation would entail at least three components, namely a cost-effectiveness analysis, an assessment of the incentive and disincentives of the program, and an analysis of alternative policy options to address identified program weaknesses. The first would first involve a hedonic regression of the estimated market rent of subsidized units according to characteristics (e.g. number of bedrooms, location, appliances, etc.).[1] This estimated market rent would then be compared with the corresponding average DTRS for type of unit and location to determine cost effectiveness. Assessment of program incentives and disincentives would require randomized social experiments that look at the behavior of recipients versus non-recipients, including the imputation of income elasticity of housing consumption, shelter cost to income ratio after receipt of the benefit, work incentives, health outcomes and other socio-economic variables.[2]

[1] See for example Cutts & Olsen (2001).

[2] American examples conducted by the Department of Housing and Urban Development (HUD) include the Experimental Housing Allowance Program (EHAP) (1973-80), the Moving to Work (MTW) demonstration (1996 to 2002), the Moving to Opportunity (MTO) project (1994 to 1998), and the Family Self-Sufficiency project (ongoing).

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Appendix A.

Detailed Methodology

Aspects of my methodology in Chapter 2 are explained in greater detail here. As mentioned, this study used the public-use microdata from Statistic Canada's 2009 Survey of Household Spending (SHS 2009) to compute program outcomes.

A.1. Determining if households meet the eligibility criteria

Assessment of whether households met the eligibility criteria options begins with the calculation of two key parameters, namely median rents by unit size, and required annual household income needed to at most contribute 30 percent to shelter costs. The medians of the monthly rent field (MONRENT) were used to estimate median rent by unit size. The small sample sizes, especially for units with 4 or 5 bedrooms were however some cause for concern. As such, I incorporated responses for the same category (MONRENT) from the 2008 Survey of Household Spending (SHS 2008) public use microdata set. Rent amounts from the 2008 dataset were inflated to reflect 2009 levels using the rental component of the Alberta Consumer Price Index. I added this amount to the 2009 rent amounts and used the medians from this combined dataset as the true median rent for specific unit sizes. Based on the estimated median rents, I then calculated the annual household income needed to contribute at most 30 percent of income to annual rent, rounded to the nearest hundred.

With these two key parameters, I then looked at the individual Albertan responses to determine if they would meet the eligibility criteria of the policy option sets. The first qualification is tenure status as indicated in TENTOIP (dwelling tenure at time of interview). I only selected households who were renters as the existing DTRS design and policy option sets are only targeted to renters. Next, I looked at the gross, before tax household income of those households (HHINCTOT). Given that my policy options retain the DTRS' existing exemption of most government transfers for calculating income thresholds, I first deducted each household's gross household income (HHINCTOT) by the full amount of household income from government transfer payments (HHINCTRA) to obtain the household's adjusted gross household income. Income testing in the DTRS and policy option sets however depends on the applicants' gross adjusted income being lower than the minimum income needed to rent a suitable unit given the household size at less than 30 percent of income (otherwise known as Housing Income Limit). As such, I have to first determine the number of bedrooms needed by the household to satisfy the National Occupancy Standard, which was reported under RQNMBEDP in the SHS 2009 dataset. I only selected households whose gross adjusted household income is below the Housing Income Limit given the unit size entitled to.

The third qualification under the existing DTRS is a shelter cost to income ratio (STIR) of 30 percent or more. Again using the program's existing definition of appropriate shelter cost as rental costs minus cost of utilities, I calculated household's STIR by dividing annual rent (GOO4) by the calculated gross adjusted household income. Households with STIRs less than 0.3 were taken off my dataset. Those with STIRs of more than 1.0 were scrutinized in greater detail for anomalies. My review of the records shows that some of

those households had initially calculated STIRs of 1.0 or more because rental cost that were higher than unadjusted annual household income (HHINCTOT). These responses were eliminated from my dataset, following the examples of Finkel et al. (2006) and Steele (2008). The remainder had STIRs of 1.0 or more because of the deduction of gross pre-tax household income (HHINCTOT) by total income from government transfers (HHINCTRA). These responses were retained because they fit the eligibility requirement.

In addition, all the eligibility criteria options tested in this two study had two additional qualifications to further target benefits. The first is the exclusion of renter households who are already paying subsidized rent due to living in government-subsidized housing, which was reported in REDURENT. The second is full-time post-secondary students with no dependents. In that case, the SHS 2009 survey did not inquire on the reference's person status pertaining to full-time enrollment in a post-secondary institution at the point of time during the interview. These had to be imputed from the dataset as reference persons under the age of 25 who had no dependents and were not working full-time for more than 4 months in the past 12 months. Those three parameters were reported in the dataset under RPAGEGRP (age group of reference person), RPWEEKFT (number of weeks worked full-time by reference person) and the combination of CHO4TOIP and CH517TOIP (number of children aged 0-4 and 5-17 respectively). Responses under the age of 25, with no dependents, and with less than 16 weeks of full time work were taken off my sample.

At this point of the processing of my data, I was finally able to compute the number of eligible households under the eligibility criteria policy options. For eligibility criteria option 2 (working age adults), I eliminated households whose reference person was aged 65 or above, as indicated under RPAGEGRP. For eligibility criteria option 3, I took out working age households who reported zero employment earnings (HHINCEAR). Finally, for eligibility option 4, working age households who reported no dependents under the age of 18 (CH04TOIP and CH517TOIP) did not qualify for the DTRS.

A.2. Calculating household's benefit level and other program outcomes

Calculating the entitled subsidy level of qualifying households under the three benefit formula options is a relatively straightforward process. There were exceptions in the case where annual rent paid (ROO4) divided by twelve was more than the estimated monthly median rents. In those cases, the subsidy was calculated by replacing R004 with the median rent of the unit size that the household is entitled to. To calculate the partial variable subsidy benefit, I used total household size as reported in HHSZTOTP.

For the purpose of determining distribution of recipients by income deciles, I first had to equalize gross unadjusted household income (HHINCTOT) using the square root method. This entailed dividing the household's HHINCTOT by total household size (HHSZTOTP). This expresses household income relative to that of a single person (i.e. in capita terms). After household income was equivalized, households were then divided into 10 income deciles of 10 percent each. The calculated income decile brackets are presented below:

Table A.1. Calculated Income Deciles

Income deciles	Income bracket ($)
D1	0 – 18,384
D2	18,385 – 28,310
D3	28,311 – 32,908
D4	32,909 – 40,304
D5	40,305 – 47,375
D6	47,376 – 54,446
D7	54,447 – 64,449
D8	65,000 – 77,781
D9	77,782 – 98,994
D10	<98,995

Appendix B.

Select Housing Allowances in Canada and the United States

Table B.1. Select housing allowances by target group and program information

Jurisdiction	Program name	Year	Target	Number of participants	Annual costs ($000's)
British Columbia	Shelter Aid for Elderly Renters (SAFER)	1976	Senior renters		
	Rental Assistance Program	2006	Family renters	Approx. 10,000 families (2013)	
Alberta	Direct-to-Tenant Rent Supplement (DTRS)	2007	Low-income renter households (both families and seniors)	6,667 households (2013)	31,240 (2013)
Saskatchewan	Family Rental Housing Supplement	2009	Family renters		
	Disability Rental Housing Supplement	2009	Renters living with disability		
Manitoba	Rent Assist (formerly known as Shelter Allowance for Family Renters)	1981	Family renters		
Quebec	*Allocation Logement*	1980	Low-income renter households (both families and seniors)		
Yukon	Rental Housing Allowance for Families	2015	Family renters		
United States (federal government)	Housing Choice Voucher Program (formerly known as Section 8 vouchers)	1984	Low-income renter households (both families and seniors)		

Notes:
There are other state-administered housing allowance programs in the United States. For the purpose of targeting the analysis, this study will only focus on the Federal program.

Source:
Steele (2009); Khadduri et. all (2007); Croll (2015); Yukon Housing Corporation (2015)

Appendix C.

Summary of Direct-to-Tenant Rent Supplement Evaluation Findings

Evaluation question (Olsen, 2007)	Deficiency type	Actual deficiency	Potential mitigating measure
The program must induce the worst housed families at each income level to occupy better housing than they would choose if they were given equally costly cash grants with no strings attached	*Effectiveness*	Most DTRS recipients do not use the benefit to occupy better and hence more expensive housing – not necessarily a problem given that Core Housing Need in Alberta stems primarily from affordability concerns, as opposed to inadequate quality of existing housing stock.	None
Families that are the same with respect to characteristics of interest to taxpayers should be offered the same assistance (*horizontal equity*)	*Eligibility criteria*	The eligibility criteria of the DTRS is too broad in that it essentially targets all households who are experiencing core housing need and have income that are less than the Core Need Income Threshold. Given the restrictive subsidy budget of $31 million, only 6,667 households, or 7.43 percent of estimated households meeting the requirements in 2009 were assisted.	Limit eligibility for the DTRS to households meeting certain characteristics in addition to the current criteria, subject to government priorities (e.g. working families only)
	Targeting mechanism	The non-entitlement nature of the DTRS requires rationing of benefits to the neediest households. This is operationalized through a point-based priority system that waitlists applicants based on their characteristics. Non-entitlement entails an unequal treatment of households who share the same characteristics because not all applicants can be funded due to a limited budget. Furthermore, only applicants who are aware of the program could theoretically be recipients of the benefit, thus benefitting those with a higher educational background, or who are lucky enough to be aware of the program.	Make the DTRS an entitlement benefit
	Benefit calculation formula	Covering 100 percent of the affordability gap eliminates core housing need of applicants but reduces the number of applicants who can be funded given a fixed budgeted amount.	Transform the program into a “partial affordability gap” housing allowance

The greatest assistance should go to the neediest families *(vertical equity)*	*Benefit calculation formula*	The DTRS covers 100 percent of the affordability gap and requires tenants to contribute 30 percent of their income for all applicants irrespective of household size. Larger households have larger and more varied expenditure needs than single households, such that a 30 percent shelter cost to income ratio under-states their affordability problems.	Vary the affordability gap subsidized or the contribution rate according to household size.
The housing provided to participants should have the lowest possible total cost to tenants and governments given its overall desirability	*Moral hazard*	The benefit formula induces recipients to consume at the maximum subsidizable rent (due to zero marginal cost of additional housing).	Transform the program into a "partial affordability gap" housing allowance
	Rent inflation	Theoretical moral hazard likelihood likely to induce more rent inflation.	
	Work incentives	DTRS recipients face high marginal tax rates of 30 percent on the portion of their total income from the DTRS. Interaction of the DTRS with other means-tested program produces high marginal effective tax rates	